

**CHIROPRACTIC
CLINICAL
CONTROLLED RESEARCH**

VOLUME XXV

PALMER

1951

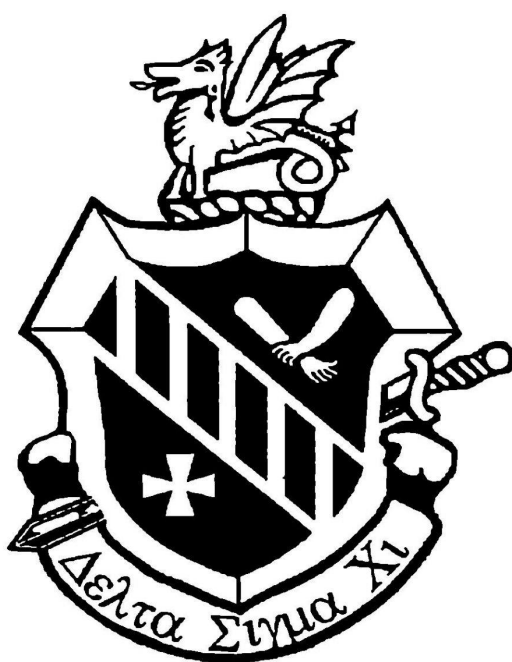
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Continuing the promotion of STRAIGHT Chiropractic



Guy Seymour









Photographic copy of original oil portrait painted by Raymond, D. R., Boston, U. S. City

B. J. PALMER, D. C., M. C.

Developer of Chiropractic

"B.J. OF DAVENPORT"*

— philosopher, scientist, artist, builder — the bit of a mortal being
whom Innate Intelligence developed.

**Oil Portrait by Raymond P. R. Neilson Studios, 131 East 66th Street, New York City*

CHIROPRACTIC CLINICAL CONTROLLED RESEARCH

By

B. J. PALMER, D.C., Ph.C.

President, the Palmer School of Chiropractic

CHIROPRACTIC FOUNTAIN HEAD
DAVENPORT, IOWA, U. S. A.

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FOREWORD

At the beginning, we anticipate this subject, as presented, will be taken at face value and understood by some, even many of our profession. Many, in our opinion, possess preconceived ideas which need reconstruction.

We record our knowledge, gained through research, of the fundamentals upon which Chiropractic rests as promulgated by our father but never clearly explained by him. By careful reading of his writings, gleanings of these ideas are apparent.

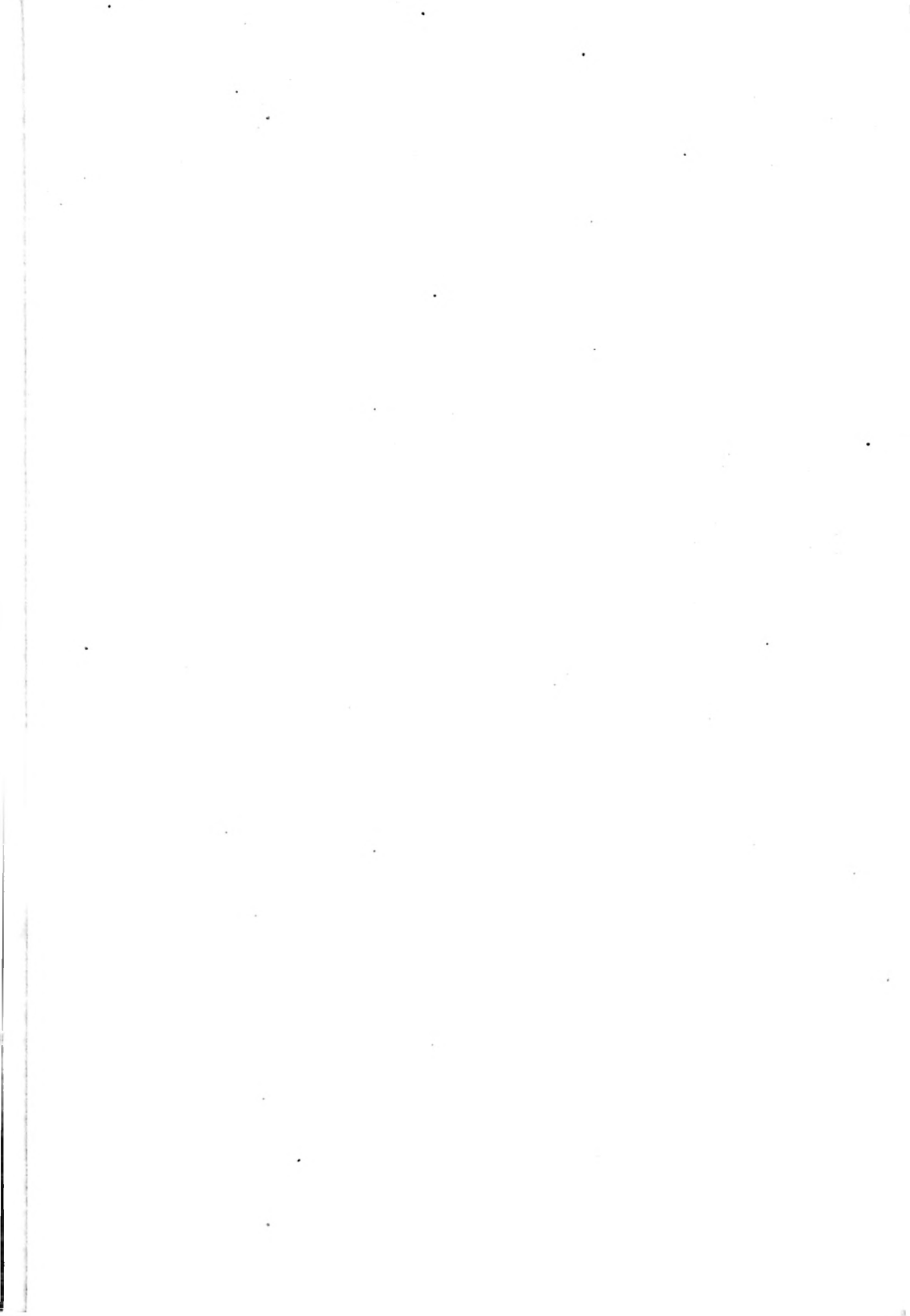
To be consistent with the objective of this book, these are written with WE and US in mind. Ordinarily, "we" and "us" imply and are understood to be TWO different and separate persons. Ordinarily, "I" implies ONE fellow who lives in a material body and runs it. Whenever and wherever "I" is used, we refer to the educated fellow who thinks, speaks and writes for himself alone as one of the two fellows he is. He does so within the limitations of his education. This book, so far as the author is concerned, writes from the duality of personalities — the inseparable, indivisible, Siamese-twin personalities living in one structure — the Innate and Educated individualities.

WE serves several purposes:

1. It eliminates that disgusting and egotistical selfish pronoun "I" which constantly intrudes itself.
2. It permits the author to delineate his concept of the duality of personalities inhabiting one human home.
3. It broadly includes and spreads credit where credit is due, to any, every, and all people who have or are cooperating in building the structures, organizations, institutions, and associations which are an integral part of their lives.

It will be difficult for the reader, as he reads "we", to think "we", because he will constantly interpret it into ordinary channels of that of TWO different and separate people. To read this book and gain viewpoint of its author, reader must know "we" or HE will fail to gain the fundamental purpose of this book.

B. J. PALMER.



CHAPTER 1

The Story of RESEARCHING THE UNKNOWN MAN

EXPLANATION

The public group mind is a group variable mind.

It is impossible to have it a composite constant mind.

The background of all makes the first possible, and second impossible.

Regimentation has no place in professional life, any more than it could have in our political or religious lives.

The graduate of one professional school is a variable to the graduate of another professional school as to what that profession is, is not; what it does and does not; or how either accomplishes its results, or fails.

The variable professional group school mind is responsible for this.

This much we CAN agree upon: if we want to live, we must work, sleep, eat, and drink.

Whether we exist or live, sleep on rocks or down, eat saurkraut or alligator pears, drink whiskey straight or aqua pura, exist off the PWA or live independently, are matters of individual choice.

This much we can ALSO agree upon: We can have a low per cent of human understanding and accomplish a high per cent of sickness failure; or we can have a high per cent of human knowledge and accomplish a high per cent of health success.

WHERE we arrive, depends upon the condition of and what road, and how we travel.

You who now listen to us have variables of interpretation of what you hear, what you believe, and how you are going to interpret what you understand after we have gone.

We come not to agree or disagree; or to ask you to disagree or agree.

We come to present evidence of scientific research upon which men do think and reason.

Your speaker hesitates to use the words "research", "science", "laboratory", in connection with this talk. They have all been fearfully abused. Every corner, many an office has a "research lab" of some kind or other which conducts NO research, is NOT scientific in any sense, and has NO laboratory at all. This abuse of terms is to draw a misconstrued inference in public mind. In spite of this, we know no better words to express what WE do, HOW we do it, AND WHY.

The option to deliver belongs to the speaker, and the option of acceptance or rejection belongs to the listener.

If that evidence appeals to reason and logic, then it is your privilege to accept and profit thereby.

THE D. D. PALMER, 1895, CHIROPRACTIC POSTULATES

The Chiropractic principle and practice, in brief, in sequence, is as follows:

In 1895, D. D. Palmer brought forth

1. — a NEW principle, with
2. — a NEW practice, which attained
3. — a NEW result.

ON THE NATURAL AND NORMAL SIDE, IT WAS:

4. — if there were no concussion of forces, accidentally applied
5. — if there were no vertebral subluxations
6. — if all vertebral and spinal foramen were normally open to full size
7. — if there were no pressure upon nerves
8. — if there were no interference to any normal quantity flow of mental impulse supply between mind and brain, body and function
9. — if there were no resistance to any transmission of nerve flow
10. — then there would be normal quantity of and/or normal quality of nerve force flow, consequently a normal speed of action of all tissue cell structure
11. — there would be normal function

12. — there would be functional, mechanical, chemical balance
13. — there would be functional, physiological, chemical life and health.

ON THE ABNORMAL SIDE, IT FURTHER WAS:

14. — a concussion of forces accidentally applied, produced a vertebral subluxation
15. — a vertebral subluxation occluded a vertebral or spinal foramen
16. — the occluded foramen produced a pressure upon nerves
17. — pressure upon nerves interfered with the normal quantity flow of mental impulse supply between brain and body
18. — pressure produced resistance to transmission
19. — resistance to transmission offered interference to transmission of mental impulse supply
20. — this reduction in quantity flow created the beginning of ALL dis-ease, either functional, chemical, or pathological.

AND, ON THE RESTORATION OR RECOVERY SIDE, IT FURTHER WAS:

21. — a concussion of forces intentionally applied, reduced a vertebral subluxation
22. — a reduced vertebral subluxation opened the vertebral or spinal occlusion
23. — the opened occlusion released pressure upon nerves
24. — the released pressure upon nerves restored normal quantity flow of mental impulse supply between brain and body
25. — released pressure reduced resistance
26. — reduced resistance reduced interference
27. — the increased quantity flow re-created the restoration of health to ALL dis-ease, either functional, chemical, or pathological
28. — diseases, as entities, were multiple; dis-ease, as a condition, was single
 - as entities, each entity had its own cure; as a condition, there was but one cure.

This is either right or wrong.

If right, it is 100 per cent right.

If wrong, it is 100 per cent wrong.

In our research work, we are ever mindful it is THE CHIROPRACTIC principle and practice that is the basic objective. If right, we must confine ourselves to it. If wrong, we can ignore it and proceed along other lines.

So far, our research has proved its fundamentals safe, sane and sound.

It is as T. F. Bennett, D.C., so accurately puts it:

"If all parts of an automobile and all parts of a wagon were shipped to the same shop to be assembled as one unit, it would be ridiculous to search for more parts, because wagon parts would not assemble to make an automobile, and the automobile parts would not assemble to make a wagon. Even tho both are methods of transportation and both have the same objective of hauling this and that from here to there, it would be ridiculous to try to mount the wagon wheels on the car and the steering wheel of the car on the wagon; or to mount the engine of the car on a wagon, or the horse of the wagon in a car. The culmination would be to 'research' either the wagon-auto or the auto-wagon; the wagon parts to the automobile or the automobile parts to the wagon, in an effort to make one fit the other. Once all the parts of an automobile are assembled, it has an identity unto itself—if it is not mistaken for a wagon. As long as the parts are in good working order, it will react the same under the same conditions even though the quality of the part can always be improved and the skill of the driver is never perfected."

Generally speaking, our profession is agreed as to what constitutes the Chiropractic PRINCIPLE.

Generally speaking, also, when it comes to PRACTICE, we have almost as many techniques, means and methods, as there are people in our profession.

Generally speaking, our profession is almost universally agreed that THE PRINCIPLE is correct; nothing can be added or subtracted to make it more correct or workable.

THE PRINCIPLE IS: All energy for the body is made in brain. *Quantity* of energy is what pre-determines *quantity* of motion in matter in a given *quantity* of time. If quantity flow of Innate Intelligence is normal, from brain to body, there will be normal body action in a normal quantity of time — health. If quantity flow is reduced, diminished, less than normal for that

amount of matter, tissue cell action will be slowed down and products or by-products of the matter will be reduced in ratio — a condition called dis-ease. If normal quantity flow was reduced to zero, it would be death.

This PRINCIPLE being true, it was and is true as to PRACTICE; therefore subject to proof in science.

We determined to set a pattern of action TO KNOW what technique, means, or method was right; which ones were wrong in technique, means, and methods; and prove or disprove each conclusion so we could and would KNOW what did and what did not get sick people well.

We have *always* gotten sick people well, from 1895 on. It was *always* a question of percentages. We intend to find WHY we had a low percentage of success and a high percentage of failures. Our efforts would be to KNOW *which* technique, means, or method stepped up one and stepped down other, and then prove or disprove each.

Once such was proven, we would offer it to our profession who could then accept or reject; but we would use only that which was proven best.

LAYING THE FOUNDATION

In building our scientific research Clinic

— we set out on a deliberate program

— we laid down several far-reaching, almost impossible attainments.

(1) Man was sick. He was sick because he had a cause

— somewhere IN the human body was a A SPECIFIC CAUSE for all dis-ease

— somewhere IN the human body was a A SPECIFIC CURE for all dis-ease

— if possible, we would locate it; ascertain its nature

— if possible, we would know more about what “cause” and “cure” meant

— if possible, we would attain the ultimate in a specific.

— We HAVE found it; only to find that only some of our people are ready for it.

(2) We approached the problem on known scientific bases:

- inert matter is dead
- static energy is impossible
- matter is alive only as it moves
- energy is such only as it flows
- life is matter in motion
- function is produced as flowing energy moves matter
- QUANTITY of energy flow, in matter, pre-determines QUANTITY of motion in matter.
- health was a quality standard of natural quantity flow of internal mental impulse supply, as it established a standard of natural quantity of action of matter.

(3) Our research program has laid down 54 major premises

- 54 major postulates we desire to prove or disprove
- have proved or disproved about half of them to date
- it will take 5 more years to finish the program outlined
- assuming we add no more as we go along; which we do
- we are determined to prove or disprove every element therein set forth
- right or wrong matters not so much, so long as we prove the issue and set forth facts that exist.

(4) This could be done only by

- a. eliminating variables
- establishing constants
- b. process of exclusion rather than of inclusion
- c. we had to convert imponderable qualities into measurable quantities
- establishing quantities rather than qualities as the pre-determining factor
- d. proving or disproving each to be just that.

Many of these, as processes, were said to be impossible. We said nothing was impossible that existed in reality.

Medicine has existed by virtue of observations, studies, and practices, based on qualities.

Chiropractic is premised on normal quantity flow being health,

an improper quantity flow being sickness, and a restored quantity flow restoring health. If true, it could be proven.

Those studies called sciences are based on quantities. If Chiropractic IS scientific, it could be proven.

The things you do not and cannot see until pointed out and explained are far more important in success of getting sick people well, here in this Clinic, than objective things you can and do see.

Variable vs. constants.

Exclusion rather than inclusion.

See how little we can do to accomplish as much as possible.

Simplify rather than complex.

WE DEMAND AUTOMATIC RECORDS

For many things we wanted automatically and mechanically recorded, there was no such instrument.

We laid down certain demands, turned our engineers and builders loose, and they were created.

We converted human observations into mechanical graphs that automatically recorded their findings.

We secure a break-down analysis of the anatomical, physiological, symptomatological, and pathological quantity energy knowledge, before and after adjustment, of each case; one laboratory against another, each with each other, each dovetailing into other, compiling and focalizing this data to A SPECIFIC subluxation, proving it right or wrong as the interfering medium and ITS SPECIFIC adjustment, proving its correction as the medium of restoration of quantity transmission; feeding these accumulative constructive survival value records into a combined conclusion on each case, week after week, all of which is constantly before us in accessible forms in a complete case file on each case.

We also have a break-down analysis of *all* cases of normal, above and below normal energy knowledge; one laboratory against another, each with each other in the group, compiling and focalizing *this group data* to prove, if possible, a *common denominator* specific subluxation, proving them right or wrong as a *common* interfering medium and its specific common adjustment,

proving their correction as the common medium of restoration of quantity transmission all of which compiled information is before us in graph forms *in a group tabulated series* of records. These give common averages, percentages, and *prove or disprove majority variables* of what and where they are to be found, what to watch for and to avoid, as well as *minority common constants*, what and where they are, *what to watch for and utilize*. After all, people ARE common in concept, manufacture, and organization, and can be reduced to common variables and constants in health, dis-ease, and restored health.

To those ends our Clinic is a series of scientifically equipped laboratories.

ANATOMICAL AND OSTEOLOGICAL CONSTANTS AND VARIABLES

There is a SPECIES and FAMILY constant.

There are Species and Family VARIABLES.

There is a Genus Homo anatomical and osteological constant.

All people are alike in characteristics, but differ in specific variables.

All have head, two arms, two legs, nervous system, vertebral column, mental impulse supply constant.

Each has a face that is variable on that head, arms and legs are long or short; no two vertebral columns alike; no two mental impulse supplies alike.

There are osteological variables, and by comparison of X-ray sublaxations with actual, in over 20,000 specimens, we reduce a certain per cent of wrong analyses.

There are osteological constants. Each person has 24 movable vertebrae; an occiput, atlas, and axis.

All bones are constant to a common constant.

Yet no two occiputs, atlases, or axes are alike. Each possesses variables.

There are left and right variables.

It is these variables that make no two people anatomically or osteologically a constant

—make no two sublaxations alike

- make no two occlusions, pressures, or interferences alike
- make no two dis-eases alike.

It is variables that make no two people take the same adjustment

- respond to it alike
- react to same condition in same speed
- or make them get well in same manner.

One of our profession, for ten years, kept putting an atlas upside down under an occiput and over an axis. He persisted he was right, until we took down a Gray and showed him. How could HE know when he had an atlas subluxation or had given an atlas adjustment? .

To be a competent, efficient, and accurate osteologist, calls for one who knows constants and variables in osteology.

USUAL AND UNUSUAL

Our professional people have a "fair" understanding of something about bones; a trifle more than that about an occiput, atlas, and axis.

Each has a "fair" understanding of something about vertebral subluxations and their adjustment.

Each of our practitioners is ordinary or extraordinary according to whether he knows ordinary or extraordinary about osteological constants and their variables, normal and abnormal.

USUAL patient has an osteological constant in common with other people.

USUAL patient has a vertebral subluxation and a vertebral adjustment constant in common with other people.

USUAL patient stands a good chance of getting well at hands of a USUAL Chiropractor.

What about UNUSUAL patient with AN UNUSUAL variable not in common with other people?

What about THE UNUSUAL patient with AN UNUSUAL variable subluxation requiring AN UNUSUAL variable adjustment?

These are "problem" cases this Clinic is called upon to get well.

Variables are anomalous, pathological, or traumatic. They can be any one, or two, or three, in any person. They frequently are in each "problem" case.

In our scientific research Clinic are over 20,000 osteological specimens; anomalous, pathological, as well as traumatic; valued at over \$185,000. Having spent thousands of hours studying and cataloging them, we know what to look for, what to see, what to expect, and then by process of seeing, find them; or, by process of seeing, eliminate them when reading X-ray films.

Ability to include or exclude variables, with the constant, gives knowledge; and knowledge is ability.

Variables make some of our profession fail on cases — not that the fundamental principle is wrong; not that the practitioner is incompetent, inefficient, or inaccurate, but that he does NOT KNOW variables on which he should be a specialist.

CONSTANTS AND VARIABLES — DEFINED

You would like to know what VARIABLES and CONSTANTS mean in science, and how we use them in research on cases:

A CONSTANT is some condition possessing reality, method, principle, and/or practice, having a developed and known basis for existence,

- which is established, remains fixed, contains elements of law, duplicates itself under like conditions;
- which establishes a rule for conclusion and function, a principle and practice true to its terms;
- which pre-determines mental, automatic, or mechanical determination and foundation for consistent, accurate, and efficient thought and action;
- which establishes fact in sequence of cause and effect, and thereby precludes differences of individuality of thoughts as essential in the equation;
- which fact exists inherent within itself, independent of men, applies itself universally to all alike;
- which does not require education per se, as a fitness for each person to start over again in application to problems of new generations.

A VARIABLE is some condition founded on reality, principle, and/or practice, having a hidden and undeveloped basis for existence

- upon which observer, student, investigator, researcher, or scientist is compelled to vary, fluctuate; is not stable, wavers and wobbles without reason or logic; observation of which is not dependable or reliable;
- which forces man to use theories, opinions, personal judgment,
- to try to reach a conclusion, to attempt to ascertain facts on an uncertain foundation upon which to judge and act;
- which by its necessary changeable differences, cannot establish facts in any sequence or as cause precedes effect, but does thereby include differences of individuality of thoughts as essential in the equation;
- which fact exists dependent upon experienced men and applies itself only as they alone apply it;
- which does require education plus per se, as a fitness which inherently cannot transplant itself to newer generations on application to its problems.

Example: 2×2 equal four — not sometimes but always
Mathematics is a constant.

2 potatoes \times 2 potatoes make 5 potatoes;

2 tomatoes \times 2 tomatoes make 6 tomatoes, are variables — variable being the difference between potatoes and tomatoes changing rule of mathematics — or does it?

Variables are additions — thinking to make it more — or subtractions to make it less;

- are attempts made to essence or dilute natural into artificial
- are attempts to substitute external for internal
- are designed attempts to substitute treatment of effects for adjustment of cause;
- are desires to replace stimulation or inhibition of reduced energy flow for restoration of natural normal energy quantity transmission;
- are ideas of medical diagnosis rather than scientific analysis.

Medicine was born a variable, separation of mind and matter. It has manufactured variables wholesale throughout its existence. It has never had one constant — they couldn't arrive with ONE constant for cause and cure of disease.

Our science was born a constant, fundamentally. No person has added or subtracted one element of the postulate constants laid down by D. D. Palmer in 1895.

In our practice, many flitted from constant and frequently flirted with variables, here and there, now and then; but the constant in that principle always brought us back to eliminating variables and re-establishing the constant.

NCM

As an example of eliminating variables to establish constants:
—take NCM readings and interpretations:

- a. hand does not always hold it level and square to neck
- b. eye does not see all needle delivers
- c. brain does not record all eye receives
- d. mind does not interpret all brain receives
- e. mind does not remember all it receives
- f. memory does not transmit to muscles of arms all it receives
- g. muscles of arm do not accurately graph on paper all they receive

—hence permanent human record between needle and paper is 64 per cent short of efficiency.

—human element was a 64 per cent deficient series of variables which had to be eliminated.

Any one man, using an NCM or any other instrument, is a constant to himself.

—he might be and could be a more consistent constant in his work than any of us imagine;

—but the moment we compare one man with another, or many others, variables enter showing they don't agree.

A constant is where men CAN'T HELP but agree with each other; the rules and methods used BEING constant, PRODUCE constant conclusions.

We demanded that:

1. Neurocalograph records be made to match, day by day, week by week, each with the other with PERFECT precision.
 2. Entire sets of six days to a week, and one week with another, neurocalograph records of one person, precisely match with those taken at previous or subsequent dates.
 3. Speed and distance constants be established which could be mechanically duplicated, wherein future sets match past sets of same person.
 4. Neurocalograph so made could be sent to the graph laboratory where tracing graph color charts could be made which would be true to prove changes in heat-line mean-line readings as well as the elimination of break readings subsequently changing as the result of action previously adjusted upon segments analyzed by neurocalograph.
- These were done by ELIMINATING human element by
—shorting across direct from needle to a mechanical automatic recording Neurocalograph.

-
- h. speed of travel was variable
 - if fast, mean lines were breaks
 - if slow, breaks were mean lines
 - i. we invented the neurotempometer which
 - established a normal fixed speed of travel
 - forced level and square-to-the-neck readings
 we sought to secure the constant on the constant of the variable transmission.

If there were NO interference, flow would be steady, normal quantity, and constant.

With a vertebral subluxation, flow is interfered with, reduced in quantity, and becomes a symptomatic or pathological variable.

Symptomatic or pathological variable had a certain amount of constant to its variability.

What was that variability to its constancy; or what was constant in its variability?

This we did not know, had no way of knowing, because of
—external variables changing internal variables

—external energetic variables fluctuating internal constant of those variables; e.g. a radio soprano or a low baritone would change variable sufficient to be marked in calibrations.

j. we found five more variables in external energy flows

- (1)—Hertzian waves, above and below radio bands
- (2)—electrical waves
- (3)—radio wave band
- (4)—magnetic north and south pole waves.

k. After these were eliminated, we found another:

- (5)—patient often came in with static
- we post a person at door, grounded with one hand, to ground incoming patient with other.

We builded a 100 per cent energy-proof shielded and grounded booth and shunted them all out and around.

Every one of 22 MAJOR VARIABLES broke down perfect conclusions leading to correct adjustment.

If there were NO pressure-interference-resistance to normal quantity flow, there would be existing a normal constant. The moment a pressure-interference-resistance exists, that moment the normal-constant begins to change to an abnormal variable. If, as, and when external-energetic-variables enter into, thru, or upon human-abnormal-variable, then we have TWO variables existing—one external mixing into internal. If, however, we can and do exclude external-energetic-variables from reaching human-abnormal-variable flow, then we can from day to day graph the characteristics of that human-abnormal-variable.

This we have done in our 100 per cent shielded and grounded booth hooked up to and with neurotempometer-neurocalometer-neurocalograph. So doing, we soon found that we were recording a definite human-abnormal-constant-variable. In other words, variability of that flow had a constant to a definite pattern. So definite is this that any conversant with that character of work can look at reading of one person, of one day, and almost always tell you patient it belongs to.

This pattern question is interesting because:

- let a new patient enter our Clinic
- give no adjustment, but begin making our readings under these exacting researching conditions
- keep it up for, say three weeks, and we will actually develop A PATTERN for that person.

That pattern will remain, in its largest sense, true to itself.

That pattern WILL NOT CHANGE until adjustment is given; after which, pattern will gradually begin building A NEW pattern — one towards the normal-constant with abnormal variables fading out and normal constant fading in.

As of this date (August, 1951), we have some 203,824 neurotempometer-neurocalometer-neurocalograph shielded and grounded booth graphs upon which we complete conclusions and statistics of what, why, and how we do it, at place we do, for reason we do, and why we do it that way.

PROVING THIS STATEMENT

Average neurocalometer-user, no matter how critical of self, has preconceived opinion he sees all and accurately records on paper what he thinks he sees. He thinks his work far more accurate than it is. We find it difficult to convince him to contrary.

At 1949 Pre-Lyceum Post Graduate Class, Dr. Clay Thompson (a PSC Faculty Member) introduced the VISOGRAPH — a VISual method of proving or disproving what eye *thot* it saw.

VISOGRAPH consisted of a huge enlarged reproduction of the front of a regular neurocalometer with a very much enlarged swinging needle which swung left and right the same as the small neurocalometer does. This huge NCM was so large it could be seen anywhere in our auditorium. It was placed perpendicularly. It was made to travel superior, on a solid backboard. The distance it traveled was equivalent to the distance a small NCM would travel from second dorsal superior to occiput. The speed of its travel superiorly was equivalent to same speed of NEURO-TEMPOMETER as synchronized with NEUROCALOGRAPH as used in The B. J. Palmer Chiropractic Clinic shielded and grounded booth.

On BACK of this VISOGRAPH, which audience COULD NOT SEE, were large sheets of plain white paper, approximately 24" x 36". The instructor had a large black crayon, and would diagrammatically draw sample reading of some kind, recording that reading ON paper. As he drew reading ON PAPER IN REAR, it also swung large needle on front, one being exactly synchronized with other. Speed of travel of drawing, on rear, was exactly speed of travel of enlarged NCM in front. As he drew reading on rear, needle in front traveled exactly the same.

Members of class were asked to concentrate, watch needle in front, and then redraw what *they thought they saw* on paper same as they would have done in their offices from use of NCM in their hands. Five or more of such drawings would be made, then enlarged crayon drawings on paper in rear would be taken off and shown to audience, that they might compare what *they* drew with what ACTUALLY WAS DRAWN on paper in rear, which exactly duplicated what needle delivered in front which they were watching. Result? Very few made one single drawing accurately. This method of testing convinced everybody they were not seeing all, not reproducing all. It proved beyond doubt what we have stated. This convinced them they needed a neuro-calograph if they desired to be efficient and eliminate variables to establish a constant.

By end of week, putting on tests daily, we stepped up their efficiency to see what they saw very much, but even then they were visually and mentally missing many vital parts of those readings.

Only place there can be a vertebral subluxation is at occipito-atlantal-axial region. There never has been a vertebral subluxation at any other portion of spine. No Chiropractor has ever adjusted any other place.

A vertebral subluxation consists of four elements:

1. A misalignment of one vertebra with its co-respondent above and below.
2. An intervertebral occlusion.
3. Pressure upon nerves.
4. Interference to normal flow of mental impulse supply between brain and body.

We prove these four elements with neurocalograph, spino-graph, and 'timpograph.

NCM-NCGH-NTPM shielded and grounded booth check readings ARE MOST IMPORTANT. It is upon them that you do, or do not, adjust. Upon them depends whether you under- or over-adjust.

It IS IMPORTANT these be accurate, efficient, and be a constant in every way.

Upon entrance of each case, full-length spinal reading is made, recorded, and graphed. This includes or excludes additional break readings, if there be such.

Upon dismissal of case from Clinic, additional full-length spinal post-reading is made, recorded, and graphed.

Comparisons are made.

There was a time when we *thot* we saw various break readings thruout length of that column. And, because we *thot* we saw them, we "adjusted" at such places and times as *we thot* such existed.

Today, records made and graphed under controlled scientific research methods prove we do not find ONE additional break reading below occipital-atlantal-axial area once in five hundred cases. And, in most of these, if we hold detectors steady ON back for a few seconds and let both detectors warm equally, these break readings disappear and a mean line heat reading appears instead. Inequality of heat values in two detectors is what reads that break reading out.

Example: If clinical thermometer were inserted into appendix in an appendicitis case, it would possibly read 104 degrees. By using NCM, nerve tracing FROM appendix back TO the back, with both terminals held perpendicular to each other, one fibre will be found hot, other cool, FROM appendix area TO backbone where that or those fibres under interference exit from spinal column. Is that fiber hot FROM that location AT spinal column . UP TO occipito-atlantal-axial area where actual interference pressure exists? We have no way of knowing except as we prove such true thru 'timpograph graphs.

Proof that these break readings AT spinal column are NOT local subluxations, is ascertained by adjusting ONLY at occipito-

atlantal-axial area and then re-checking below at exit of those fibres, day after day, or from week to week, finding they reduce below as they DO reduce above at point of subluxation. When such tests are made on thousands of cases, it proves what we THOT were local or inferior meric system subluxations were not such in fact.

Another visual test training put on for Pre-Lyceum, 1949:

Instructor had small projection lantern. On a series of slides he had printed numeral digits. These flashed on the screen one-tenth of a second. Room was dark. Before flashing numbers, he would say "Quiet!" Then an interval. Then "Concentrate!" Then another interval. After flashing these in series of five, of three numbers each (such as "394"), he would ask class of 120 members to write what they thot their eyes saw. In fore part of week IT WAS RARE TO HAVE ONE PERSON HAVE ALL FIVE SERIES OF THREE FIGURES CORRECT. This proved how fickle eyes were to see, and how fickle mind was to think correctly, record efficiently, and remember accurately. If one had asked this class, in advance, IF THEY COULD DO THIS, they would have answered in affirmative.

Gradually, as week passed, with half-hour daily tests, instructor stepped from series of five slides of three numbers, to flashing series of five slides of SIX digits each, and quickened time of exposure from one-tenth to one-hundredth of a second. Gradually, class stepped up ability to see, to record, and to remember more accurately. Outside of one or two, even then most did not read accurately all five slides of six digits each.

Several years ago, we told our profession they were not seeing, recording, remembering, or graphing accurately what NCM needle was delivering. They THOT they were. Here were two methods of letting them PROVE TO THEMSELVES they were not. As they could not record figures, or enlarged NCM graphs, it brot vividly to attention that many had fallen down in NCM technique thru NO fault of NCM, but FAULT WAS IN THEMSELVES. Just as we in The B. J. Palmer Chiropractic Clinic researched this problem and corrected it with Neurotempometer and Neurocalograph years ago, so did THEY now see where better and quicker results could be obtained on more stubborn

and worse cases IF they were to follow NCM accurately. We did not have enough Neurocalographs to meet demand after they proved to themselves this was exactly what they must have to overcome human variables. (See Debunking Conceit, P. 123, Vol. XXIV — Palmer)

Step by step, by eliminating inaccurate variables, we automatically established accurate constant and builded positive information as to where, when, how, and why to adjust subluxations to reduce pressure-interference-resistances and restore normal health transmission between brain and body. It is difference between guessing or hoping we have, and definite knowledge in KNOWING we have.

If we were to ask each of you to write on paper how high this ceiling is, how long this room, and how wide between walls, we would have a diversity of variable opinions. Each would GUESS. There might be a few who would guess quite accurately. Majority would be away off on one or more dimensions.

There is ONE WAY ALL could be accurate, secure knowledge, and be positive in declarations: buy a steel tape rule and measure. If each did this, we would ALL agree on what tape proved.

Daily procedure in The B. J. P. C. C. reading booth is as follows:

One person reads — graph is recorded

Second person checks what graph proves

Third person has a printed sheet on which is written

—name of case

—number of case

—minute record is made

—neurocalograph graph number, because each graph IS printed on the paper.

After Clinic is over, graphs are cut apart and filed in case file.

Fourth person gives adjustment, if, as, and when such becomes necessary.

Fifth person stands at door entering booth, opens and closes door, touching each person to demagnetize static from their bodies, if, as, and when such exists.

As each case leaves booth, daily, he is handed a printed DAILY CASE REPORT. This he will fill out tomorrow, and hand to

Director of Clinic when he comes back tomorrow. On it, case will report as to how he feels during interval of yesterday and today (not that this is important); he will also ask questions that may be in his mind, which he wants Director to answer. These questions indicate character of thinking of patient, and often give us opportunity to quickly correct wrong thinking under which case may be laboring.

These reports are in handwriting of case, are dated and signed. They are filed in case file under a certain section. If, in future, this case should decide to start a mal-practice suit, for just or unjust cause, we have a daily case report, in handwriting of case, to fall back on, to prove what he wrote is different from what he states he is suing for. Patient, in other words, is building a daily case against himself, just in case.

These DAILY CASE REPORTS are all uniform except for that of FIRST day, or DAY patient gets his adjustment, or subsequent days if another adjustment be necessary. On that day the form contains following additional printed statement:

"Each time you receive an adjustment, which we hope won't be often, check the following four conditions:

"1. Did you notice your head felt clearer as tho a load had been lifted? Yes. No.

"2. Did you feel a warm glow over body, especially hands and feet? Yes. No.

"3. Was there a tired feeling of lassitude, exhaustion afterwards? If there is, rest as much as you can, the more the better, for it is during such periods repairing, rebuilding and recuperation are working at their best. Yes. No.

"4. Did you feel a slight hunger, not great, but some, after adjustment? Yes. No."

Purpose of these questions is simple.

A vertebral subluxation produces pressure upon nerves which should carry a full normal quantity of mental impulse supply FROM brain TO body.

Due to this pressure, it does TWO things to mental impulse current supply, viz.,

(a) It DAMS BACK supply which should flow forward

(b) It STARVES tissues of that which is dammed back. As a result, there is a full, heavy, chocked back feeling in head; a cold, clammy, chilled feeling in body. Because of body being starved of energy, it is weak, tired; and because stomach (as an example) does not get full quantity — as is also potentially true of other organs — appetite is impaired.

When adjustment is given, if given correctly and accurately, at right place, at right time, in right manner, this releases pressure, opens flood gates, releases dammed-back flow, makes head feel clearer, "as tho a load had been lifted." It allows current supply to flow forward into body, which gives a "warm glow", more noticeable, so far as the gross observations of patient are concerned, in hands and feet. Because there is increased surge of energy, which begins work by working organs and tissues, there comes a period of tiredness same as any of us would feel if we were to work after a more or less long period of inactivity. This period of tiredness usually lasts one or two days, but sometimes lasts for a week or more according to degree and quantity of work being done. As this surge flow enters stomach it demands more food to sustain healthy building; this creates an appetite which stomach is prone to notice, more so than in some other organs less likely to reveal their increased activity.

Case comes into booth, first day, wearing a gown with no clothing beneath. This gown opens down back, and makes it easy to make full-length spinal NCM-NTP-NCGH reading.

He is given an adjustment, after which he is returned to booth for post-check, to see if pressure has been removed and current flow re-established.

If post-check is satisfactory, case is taken to ambulatory couch outside door of booth, and is wheeled to a darkened, quiet, insulated rest room, where he is requested to rest — sleep, if possible — three or four hours. Inasmuch as adjustment was given during noon hour, this is possible.

Average Chiropractor has spent at least thousands of hours of study, thousands of hours of hard work, thousands of hours of drilling and training TO PREPARE himself to lead up to final and climaxing issue of all training, viz., to give a correct, accurate adjustment of vertebral subluxation. Then he does not spend one dollar to preserve or to protect that adjustment, once cor-

rected. He does not have rest rooms, permits his patient to get right up, twist and squirm in putting on clothing, leave his office and run to catch a car or bus — possibly stumbling on the way, and more than likely throwing vertebra out quickly, or partially, and undoing all good accomplished. Chiropractor's reason is that "space costs too much per cubic foot rent."

In conduct of THIS Clinic, nothing is too costly to build, if by so doing it helps preserve and protect adjustment once given. We have thirty-eight darkened, quiet, insulated rest rooms for that purpose. We consider this a valuable investment, as valuable as any other we made in preparing to lead to this step.

An adjustment SETS the subluxation. Rest SEATS the vertebra, once it is SET. This is ONE of many reasons why we give fewer adjustments than average Chiropractor — we permit it to SEAT itself on all-important first day.

On two walls of reading booth are glass uprights which leave a slight space between copper wall shielding and glass between, on which are assembled ruled cards. White ones are regular cases. Pink ones are student cases. Each is given its rotation number, name. Space below is ruled into weeks, across card. As case enters, date is entered in space to left. Each day case appears for check, space is checked for each day of week. If, as, and when adjustment is given, red "A" is marked in that space instead of a check mark.

These cards give a quick, hasty glance as to frequency of adjustments — and that is the main purpose.

As cases come or go, cards are placed or removed.

If case returns at future date, card is taken out of case file and replaced in alphabetical order in racks.

As case enters for daily check, card is reversed in rack, face to wall. In this way, we know when all have been checked.

This commercial field of the doctoring profession is also fraught with endless variables. Sick patient goes to a medical doctor, who asks patient innumerable questions; taps him here and there; listens here and there; takes some sputum, urine, or other excrescences and breaks down chemical analysis; and finally comes out with a hypothetical diagnosis; prescribes, and hopes

case will see improvement. If he doesn't, he will switch prescription from time to time, guessing what to give — and so it goes, century after century, switching substance but not principle.

The public have become thoroly saturated and indoctrinated with necessity for all this, in belief that only such procedure is wise, intelligent, successful, and continue to demand such, even tho they do know none of it has done them any good.

Physicians also have become saturated and indoctrinated with same theories that they see and know of no escape from it all, even tho all is useless, worthless and of no value; all of which they know and admit amongst themselves, even tho they do not say so publicly. They continue to pump it into public consciousness that there must be a diagnosis before treatment; that treatment without diagnosis is impossible; that diagnosis is the fundamental upon which health measures should and must rest.

To this end, physicians build basic science bills, demand diagnostic studies be forced upon Chiropractor who has no use for such and does not believe in them. Legislation forces the Chiropractor to study them, learn them, pass an examination on them before one or more boards, to secure license to practice that which he does believe in.

When average physician learns that a Chiropractor does NOT diagnose, does not NEED diagnosis, can get sick people well WITHOUT diagnosing; and when physician has his attention called to the fact that thousands of sick go to a Chiropractor, get WELL without Chiropractor diagnosing, he then comes forth with this argument: "They weren't sick anyway. They just thot they were. And, if they were sick, they would have gotten well without any treatment of any kind." That sophistry is shallow.

So long as HE had those cases, could hold them as his patients, they were willing to pay him for professional services, they WERE sick; at least, HE was willing to say they were.

To offset the theory that "cases that come to this Clinic are not sick, having nothing the matter with them — that it is all in their minds," we here have every case go thru a complete series of medical examinations, far more complete and accurate than average physician uses, and equalled by few clinics in the world. Physicians on our staff use regular medical equipment,

establish medical findings with medical instrumentation. Full and complete records are kept of these findings.

Clinical procedures are divided — medical examinations and Chiropractic examinations. Each has its own and separate labs.

All adjustment procedures are exclusively based on specific Chiropractic findings in Chiropractic labs. No adjustment is based on any medical finding in any medical lab. When case is dismissed as improved, or well, only service rendered which secured that improvement or health **IS THE SPECIFIC CHIROPRACTIC ADJUSTMENT**. No credit for recovery can be attributed to **ANY** medical procedure conducted in this Clinic. We could eliminate **ALL** medical procedures and secure the same results we do now. Why medical procedures? To convince medical men, with medical diagnostic methods and equipment, that medically patients were sick, and are now well, by post-checks on use of same methods and equipment. This removes any medical man from questioning authenticity of results attained with **CHIROPRACTIC** used exclusively.

Work in The B. J. P. C. Clinic has reached such a high stage of efficiency that any sick person could come here, refuse to discuss his case with any person here; be deaf and dumb and blind, so far as we are concerned; be sick, regardless of name ascribed to his sickness, regardless of where it is, irrespective of how bad it is; could stay here, go thru our Chiropractic analytical procedures, and go home well — and we not know what disease he had when he came or what he was well of, after he had gone.

Each person who is sick is so because of a vertebral subluxation with its sequences. We know area in which this will always be found. We use spinograph to secure its abnormal position in that area. We use NCGH to secure information as to when interference exists. We know how to give adjustment at place, in direction, at time. Innate does the rest. All this we do without one word passing between case and Chiropractor.

As it is now, patient has to tell physician about everything physician needs to know. As it is now, here, patient needs tell Chiropractor nothing. Chiropractor will tell patient.

If there were **NO** vertebral subluxations, there would be a full normal quantity flow of mental impulses between brain and

body, and neurocalograph would record a median straight line graph wave pattern. This would establish a normal constant graph.

When vertebral subluxation occurs, with its occlusion, pressure and interference to normal quantity flow of nerve force, we have a variable from that constant. It is that abnormal variation from that constant we record in sick people. Even then we record a variable-constant.

There are foreign elements which prevent this, viz., in atmosphere are four kinds of energy: Hertzian waves; broadcasting band; high and low frequencies above and below that band; and the magnetic North and South Pole waves.

Man is an external insulated, internal human electrical instrument. His skin tends to insulate low internal energy quantity against high external energy quantities which bombard him. They penetrate thru skin, are picked up by nervous system, and thus external energy variables produce variations to variable-constant of abnormal quantity flow in sick people. This would be true if there were no subluxation as well as if there were one. It is this superimposition of external variables into and thru internal human-variable-constant which destroyed a large percentage of accuracy and efficiency in determining what graph wave patterns were trying to reveal to us as to breaks in readings of sick people.

When NCM-NCGH records a graph wave pattern of a sick person, out in the open without shielding and grounding, we cannot secure a variable pattern that is constant because it is fluctuating because of external energetic variables which are artificially and externally superimposed. These external variables, such as sopranos, bassos; musical instruments, such as violins, etc., introduced into human body, add variables to variable-sick-constant; hence fluctuations in readings, according to what might be in air at time of reading.

To offset this, we build shielded and grounded booths in all labs where we record human energies, to exclude all external energetic factors from reading or penetrating body of patient; hence we get a true, accurate, and efficient daily reading pattern of patient's abnormal variable-constant; hence accuracy of repeated true graph wave pattern.

In all pre-checks, this pattern will be consistent up to the day of adjustment. Post-checking, under like conditions, gives us also a true graph wave pattern which is consistent following the adjustment.

Only interference left is cosmic rays, which is a known and present quantity. It would take a cube room with lead walls 14 feet thick, at Davenport above-sea-level, to eliminate cosmic rays interference in our shielded and grounded booths.

Obviously, such would be extremely impossible except under almost impossible weight-sustaining and cost-prohibition conditions. At that, it is advisable to eliminate any, all, and as many energy interferences as possible. It were better to eliminate hertzian, ordinary radio broadcasting band, electrical, north and south pole magnetic waves as well as removing static from patient's body, even if we cannot avoid interference from cosmic rays.

Readings taken in grounded and shielded booths for polygraph, neurocalometer-neurocalograph-neurotempometer, sphygmomanometer, electrocardiograph, audiocardiograph, heartometer, electroencephaloneuromentimpograph, and other instruments which directly measure a nerve force energy flow,

- secure accuracy,
 - reduce false readings,
 - reduce break readings,
 - increase intervals between false adjustments,
 - secure correct adjustments at correct times,
 - reduce time of stay of cases,
 - get them well quicker of worse conditions,
- reducing cost to them, permitting us to charge a higher weekly fee for securing results in "problem" cases which otherwise would fail to get well.

It is well known that man is approximately one-half to three-fourths of an inch shorter at night than in morning.

Or, in reverse language, he is one-half to three-fourths of an inch taller in morning than at night.

During night, prone, he is relaxed and spine lengthens. During

day, gravity weight of body on spine tightens ligaments, contracts muscles, and shortens spinal column.

If you were to take fifty cases and read them consistently, day after day, at say 7:00 a.m., you would find all readings and the patterns thereof more constant as of that hour.

If you were to take same fifty cases and read them consistently, day after day, at say 7:00 p.m., you would find readings and patterns higher.

If a break were to appear at 7:00 a.m., it would be less than if same break were to appear at 7:00 p.m.

Average Chiropractor, in his average office practice, reads case at various hours of day, whenever it appears convenient for patient to drop into office. This is a possible schedule: Monday, 9:00 a.m.; Tuesday, 4:00 p.m.; Wednesday, noon; Thursday, 2:00 p.m.; Friday, 8:00 a.m.; Saturday, 6:00 p.m. — those hours being more convenient for business man or housewife who comes downtown for shopping, visiting, or her club. Result is, there was introduced a decided variable as to length of spine, with consequent variables of degrees of interference as that spinal column shortens and compresses nerves.

There might be no break existing in morning, which might be present at night. To read a certain case ONLY at night, might mean to over-adjust. To read same case ONLY in morning, might mean to under-adjust.

It would be folly to let CASE determine time of day of reading — whenever might be convenient to him or her.

To prevent reading these variables into our Clinic cases, we established the noon hour as time of reading. We even split that noon hour and begin at 12:30.

In this way, we establish a FIXED hour of day, each day. This hour is neither at its best in morning, nor at its worst in evening. We strike a happy medium and, unless there is some emergency, we stay put to that hour.

In this way, we read a constant as to time of reading. We do not fluctuate our opinions and conclusions based on the convenience of cases, but that which more nearly strikes a mean level of interference time.

We work on the principle that our cases want and need to get well.

Getting well IS THE FIRST ORDER OF THE CLINIC AS WELL AS PATIENT. We insist upon patient doing everything TO HELP US.

If we were a practitioner in the field, we would do the same there. If patient could not and would not come to our office at time best suited for his good, in our opinion, at a stated regular hour daily, we would dismiss him and prevent him from preventing himself from getting well, as well as prevent him from destroying our best to serve him to get him well.

If we consent to his convenience we multiply imponderables and, with OUR consent, permit him to defeat end he pays US to use OUR judgment to accomplish.

If WE permit such, we accept opportunism to substitute for success against our own judgment.

On non-essentials, we yield. On essentials, there must be no yielding to please patient.

Each day's NCM-NCG-NTP reading is formed into a comparative graph of each week, and each week's graph into a month, so that we soon have an established PATTERN of that person's readings. The pattern will be consistent.

If the pattern changes radically FROM that pattern, in any one day or over several days, we can tell what is going on

- whether we are increasing or decreasing pressure
- whether getting ready for and approaching an adjustment
- whether growing into an oncoming subluxation
- whether monthly period is coming on
- whether drugs are being taken between periods of chemical reports from chemical lab.
- whether case is drinking or taking other stimulatives or inhibitives, etc.

SPINOGRAPHS

X-rays went thru the same searching development for variables.

- We demanded an X-ray equipment which would make possible flat or stereo precise-duplication of a posture-constant at any and all future times on same case;

- that spinographs FOCALIZE to occipito-atlantal-axial region, or entire spinal column, head-to-hips in a single exposure on a single or stereo film.
 - that spinographs be brilliantly clear in sharp detail WITHOUT distortion
 - that entire spinographic sets of A-P Natural (1), Lateral Natural (2), A-P Stereo (3-4), Diagonal Stereo (5-6), BP Stereo (7-8), 8 x 36 Stereo (9-10) be made to match each with the other, with PERFECT precision.
 - that stereoscopic spinograph sets MATCH line for line, blending one into the other without distortion, or portray true third and fourth dimension directions.
 - that entire set of ten spinographs of one person, made at previous date, precisely match entire set of ten spinographs of same person taken at later date, regardless of whether that be 2 weeks or 2 years. Before-and-after sets required to perfectly match without distortion.
 - that a posture-constant be established which could be mechanically duplicated, wherein future sets match past sets of same person.
 - that spinographs so made would be so perfectly matched that overlapping graphs could be made which would be true, to prove mathematical changes in position of segments subsequently existing as result of action previously adjusted upon segments analyzed in spinographs.
-

In this way, we know precisely

- what has mathematically happened to individual subluxation
- whether it has been mathematically corrected from abnormal to normal position
- whether it has been mathematically made worse, from normal to abnormal position
- whether it has been moved from wedge to no-wedge
- whether it has been moved into wedge and made worse
- whether we have moved correct vertebra, or incorrect one
- if it has moved mathematically, and in which direction
- if it has not moved, why not

—as time proceeds, what effects its change has had on balance of spine contours, if any.

No such equipment existed, so we proceeded to make it

—10 years and \$50,000 — we now have it.

Each case has a check set

—every two weeks

—our gross average number of spinographs per case, since opening of Clinic, August 5, 1935, is 21.85.

—greater than any other Clinic in the world.

Being precise in posture-constant

—we make flat or stereo graph set overlapping record

—which mathematically measures correction of vertebral subluxation following adjustment. WE KNOW. WE DON'T GUESS.

—adjustments, if, as, and when, are now measurable.

—opinions, as such, as of what, when, where, how, and why, are eliminated.

We check next adjustment

—two ways

—NCM-NCG-NTP record and

—X-ray check set graph

8 x 36 stereos prove 99 per cent of cases have abnormal adaptive curves

—we developed, invented, and patented

—the conturgraphometer

—which automatically and mechanically records all curves of spinal column. This record is made each week.

Conturgraphometer automatically and mechanically records anterior-posterior curves, left and right lateral curves. Only specific adjustment given is at occipito-atlantal-axial area. Any changes occurring in comparative contour graphs taken consecutively a week apart, are due to that adjustment alone. No lifts under heels; no other "adjustment" given any other place. Records show average case height is increased from one-half to

one-and-one-half inches in six weeks. To increase height means to straighten out adaptative curves — either lordoses, kyphoses, scolioses, or rotatory — thus increasing height. Adjusting cause relaxes contracted muscles on one lateral side and/or contracting prolapsed muscles on other lateral side, either change straightening curves, raising height.

WE KNOW. WE DON'T GUESS what's happening, where, how, and why. (See long article on Adaptative Curves in Vol. XXIV Palmer, 1950)

Reading X-rays is reading shadows. As a sample of efficiency, we use only distilled water for developer, fix, and rinse;

- established temperature, summer and winter
- thermostatically heated in winter
- thermostatically cooled in summer with two refrigeration plants.

Microscopic study of films proves that cold water shrinks film on emulsion base, changing minute shadow lines. Hot water causes film on base to "run", changing outlines of shadows.

As another example of variables vs. constants:

- to INCLUDE many means and methods
- to INCLUDE many places and ways to adjust
- to INCLUDE many treatments simultaneous with adjustments
- would mean to complicate and complex variables from which nothing could be deducted
- to EXCLUDE all means and methods down to one
- to EXCLUDE all places and ways to adjust down to one
- to EXCLUDE all treatments of any kind and only ONE adjustment, ONE place, ONE way
- would mean to simplify, extricate and eliminate all variables down to a constant from which a deduction COULD BE made.

Majority believe that in process of inclusion of more, varied and many contradictory and opposing systems, they are ADDING health service to their clientele.

Minority have proved in process of exclusion they are subtracting all elements which detract and dilute this service.

It is now demonstrable, as scientific research, in giving "more" they give less. There was a time when this could not be proved. It is now proved that less done wrong, by way of inclusion, more is done right by way of exclusion.

Cases we get in The B. J. Palmer Chiropractic Clinic are "problem" types.

What is wrong with medical principle and practice, that it fails? That is A PART of problem we solve.

What is wrong with Chiropractic PRACTICE, that it fails at hands of some Chiropractors, and succeeds at hands of others? That also is PART of problem we solve here on their cases.

Approximately fifty per cent of patients in The B. J. P. C. C. are Chiropractors or members of their immediate families. Why? Answer lies in wrong adjustment, at wrong place, wrong way, or wrong time; and/or over-adjusting, if right. Many a case has gone to a Chiropractor, taken one adjustment, never returned. When next seen, months later, inquiry reveals case is well. Patient knew WHEN to quit!

Sick people go to a Chiropractor when medical experimentation has failed. Sick people come to The B. J. P. C. C. when Chiropractor has failed for some one of many reasons. Those "problems" our research solves.

Obviously, a Chiropractor WANTS to be healthy AND live. WHY is he so often sick and given up to die? That is ANOTHER part of "problem" we solve here by getting cases well and SAVING their lives.

One of the early questions, in our determination to know and lick problem of guessing at conclusions was whether to include other principles and practices in conjunction with Chiropractic principle or practice; or whether to exclude them.

It did not take long to reach a sound conclusion. To include other principles and practices is neither to prove Chiropractic right or wrong nor to disprove other principles right or wrong — regardless of whether case got well or failed.

Let us cite a few examples:

There is an itch on abdomen. It is caused by a vertebral subluxation, says Chiropractic. It is caused by an inflammation, or a germ, or an infection, says medicine.

Here are two contradictory principles. Chiropractic adjusts vertebral subluxation. Medicine puts something on itch to alleviate inflammation, or kill germ, or act as antidote to infection.

Which to do? Suppose you do BOTH. You give an adjustment; you also apply liniment, a germicide, and an antidote.

Patient gets well. WHICH DID IT? You tell, because we can't. You mixed two contradictory principles and practices. One of them worked because patient is well. Which principle and practice did it?

There is constipation. It is caused by vertebral subluxation causing muscular walls of bowel to become paralyzed so they can't contract and expel fecal matter. It is caused by prolapsis of muscles in bowels, says medicine, and you need take something to stimulate prolapsis, says medicine.

You apply Chiropractic principle by giving vertebral adjustment; you also give orally epsom salts. Bowels move.

Which principle and/or practice delivered results? If you used Chiropractic principle or restoration of normal mental impulse supply; and if you used epsom salts to stimulate bowel — which did it, admitting you got results? How can you separate "results" of one from other, both being contradictory and antipodal to each other?

There is the Chiropractor who believes that in including many things he has made an addition to his objective of getting sick person well.

He gives an adjustment, or many of them at various places in the back, plus infra-red rays, various kinds of therapies, privy practice, etc.

Suppose case DOES get well. Which and/or what did it? Does it take all? Does it take some? If so, which ones? Which could be excluded? Which are necessary, by inclusion? Which would be better by exclusion? Suppose he begins to exclude, one by one, and finds his case getting well quicker? Suppose he finds that inclusion of many excludes health by dilution? Suppose he could prove exclusion of unnecessary hastened recovery by inclusion only of necessary? How can he possibly know, when there are many, opposing each other?

There are normal adaptative curves. Chiropractic says they are adaptative to gravity weight of an abnormally positioned

head. Others say they are caused by improper postures at desk, in chair, because one pelvis is tipped higher than other, or because one leg is shorter or longer than other.

Chiropractic says adjust atlas or axis subluxation—the cause—effects and symptoms will take care of themselves. Another method may say to put a lift in the shoe, force the long leg to become shorter or equal to the short leg, and this will straighten the pelvis, take out the adaptative curves; take spinographs and prove that is exactly what does happen. Which principle or practice is right?

There is a way of testing—and proving.

Rather than include BOTH at same time, on same case, suppose we exclude one, or the other. Suppose we adjust atlas subluxation, check, measure, and prove our case. This we have been doing for years. Other method is to put a lift in the heel, spinograph, and watch to see what happens. Immediate results will be to show a change, the same as we secured with medicine on itch, bowels and salts, etc. Those who put lifts in heels almost ALWAYS GIVE AN ATLAS ADJUSTMENT. By process of INCLUSION, they DON'T KNOW and have NO WAY OF KNOWING which principle or practice secured the result. If those who believe in this principle were to use THAT PRINCIPLE AND PRACTICE ALONE, and NOT give any adjustment at all, on any cases, they would find whether it worked or failed. Some of our profession have done this, and have become convinced.

If Chiropractic principle and practice is right, how far is it right; which one of the various theories is correct to follow?

Is vertebral subluxation single or multiple? If one, which one? If multiple, which ones or series of ones, and where located? One man says he adjusts only ONE and patient gets well. Another says he adjusts several and patient gets well. Both are contradictory to each other. Who is right? How can any process OF INCLUSION prove it is? Does the process OF EXCLUSION prove itself? Only by the process OF EXCLUSION can anybody reach a definite, positive conclusion of fact.

Better fail and know why, than succeed and not know why or how.

Average Chiropractor reminds me of Uncle Howard Nutting and how he shot the robber.

"Uncle Howard" was an early advocate of Chiropractic and one of its staunchest adherents in an understanding way, of the principle and practice involved.

He was awakened one night by Mrs. Howard, saying there was a burglar in the house. Uncle Howard got his revolver and belt of bullets. Going to the garret, started shooting into every corner, crevice, behind every obstacle. He came down to second floor, did same in every room, under every bed, in every closet. He went to main floor and repeated the process. He went to the cellar and shot in coal bin, fruit cellar, behind boxes, after which he came back to bed.

Mrs. Howard asked him if he "shot the burglar." "You bet I did," said he. "Did you SEE him?" "No, it was not necessary." "How do you KNOW you shot the burglar?" "Because I shot every place one could hide."

This is the principle of inclusion, via shotgun prescription process.

It would have saved effort, time, labor, stewing, fretting, guessing, and uncertainty, if he had watched for the whites of his eyes, taken *one specific* accurate shot, and hit the bull's-eye.

Mathematics, astronomy, and chemistry are sciences. They are such because they are each based on the exclusive process of ascertaining conclusions and facts. We contend Chiropractic is a philosophy, SCIENCE and art. Take an imaginary trip thru various cities, various states; visit various Chiropractor's offices, and then you tell me how much science is involved or practiced. How many do the same thing, in the same way? How much do we find each office a rule of thumb unto itself. Any patient, traveling from city to city, would not know whether to strip, lie back up or belly up; leave all clothing on; to prepare for a bath, internal or external; to get a massage, to orally take pills, potions, or poisons; to have his tonsils cut out or his bowels washed out. Where IS this boasted SCIENCE of ours?

The problem is one of percentages — percentage of success as against percentage of failures. Somewhere there is a saturation point of satisfaction in the average Chiropractor and at that point he stops growing.

No matter what is done, or where it is, if done upon the back there will be a percentage of ACCIDENTAL subluxations that WILL be innately internally accidentally correctly adjusted; and that per cent will get well — not because you KNEW what, where, how, or when, but because you ACCIDENTALLY did something, in some way, at some place, in some manner which permitted recovery to occur. At this point, you may be satisfied.

On the other hand, you may want TO KNOW how to INTENTIONALLY do certain things, at certain places, in certain manners, at certain times, to correct same, and step up your percentage of results, to include some you would otherwise accidentally fail to get well.

D. D. Palmer's first case, Harvey Lillard, got well. This was 100 per cent.

He failed on the second, third, and many others.

As our profession grew numerically, as they consistently began slipping, grew careless, indifferent, and didn't care what they did, where they did it, how, or when, the percentage of successes began to drop until, generally speaking, it had reached that accidental percentage level. It was then we decided to begin re-searching to step up, not the percentage of accidents, but to reduce the percentage of failures.

To apply Chiropractic intentionally requires work, intelligence, diligence, application, long hours of study, more than the average individual cares to deliver. Even tho easily satisfied, and get only that accidental percentage well, you will get more well than the members of any other profession we know; therefore, your position in society is justified, even tho 100 per cent of patients are not satisfied; and we are not contented to see you stand still on the accidental level.

BRAIN AND SPINAL CORD — ITS SHRINKAGE BEFORE AND AFTER DEATH

1934 produced one "chiropractic" house-organ which inferentially suggests, seemingly without conscientious conviction, what Swanberg asserts with some regard for scientific knowledge. This house-organ fears wholesale condemnation if it supported a truth, therefore it treads lightly on a dangerous mooted subject hoping to receive individual professional commendation from

those who likewise deny the specific principle and practice, which they will not affirm and cannot deny.

In brief, their position is:

- a. the neural canal is large
- b. the spinal cord is very small
- c. there is a large space between one and the other, filled with fluids
- d. there is a small space, which is not filled with fluids, in intervertebral foramina
- e. therefore, the specific principle at atlas and axis, in spinal canal, is impossible
- f. therefore, pressure at intervertebral foramina is very unlikely.

Previous to 1930, the PSC taught, affirmed, and believed the all-vertebral-subluxation, all-intervertebral-foramina-pressure, every-vertebra-adjustment idea. Today, we assert and believe only atlas subluxation, cord-pressure, one-adjustment principle and practice; denying balance of spine; stating and proving reasons therefor.

Article mentioned desires to deny that which we affirm. Unable to deny clinical and modern scientific findings and conclusions upon which part is affirmed and balance denied, they set up a general anatomical, DISSECTIONAL denial as copied from anatomies, not only of part we affirm, but to make denial OF THE PART appear worthy they are compelled to consistently set up denial OF THE WHOLE.

To deny the specific principle of pressure as confined to spinal cord at magnum foramen, atlas and axis region, they INDIRECTLY and INFERENTIALLY desire the reader to understand there can be none such, but leave the issue sufficiently open so they CAN escape if occasion later demands. Their article sustains the TOTAL opinion of Swanberg.

Swanberg reached his conclusions working with a FROZEN specimen of cat, while article quoted relies on what they read from anatomies (which are revised with each new edition), based on DISSECTION on long-dead subjects, which they state reveals truth on facts as to sizes of brain, spinal cord, and spinal nerves.

The article comments upon "the LIFE size of the atlas together with the LIFE size of the spinal cord . . ." We take it that here is meant the normal, natural LIVING size of each before and without any shrinkage of either. There IS a difference between LIVING "LIFE" size and "dead" size. Dissectional anatomical observations, including histological and microscopic slides, prove that BRAIN, SPINAL CORD, and SPINAL NERVES SHRINK BETWEEN ten per cent and fifty per cent BETWEEN two and four hours AFTER DEATH, according to which authority is quoted. As bodies are embalmed, or are kept for dissection, or specimens are pickled in alcohol, they CONTINUE TO SHRINK between time of death and time of dissection observation, be that interval what it may.

Any composite structure shrinks under time and chemical action. Brain, spinal cord, and nerves shrink most. Bone shrinks least. ANY CONCLUSION BASED UPON RELATIVE COMPARATIVE SIZE OF OSSEOUS VERTEBRAE (WHICH SHRINK PRACTICALLY NONE) AS AGAINST BRAIN, SPINAL CORD, AND SPINAL NERVES WHICH SHRINK BETWEEN TEN AND FIFTY PER CENT IN TWO TO FOUR HOURS, AND CONTINUE SHRINKING, is no exclusive scientific process worth being deduced into wholesale denial of a Specific Chiropractic principle and practice based upon RELATIVE COMPARATIVE SIZE OF OSSEOUS VERTEBRAE AS AGAINST A BRAIN, SPINAL CORD, AND SPINAL NERVES OF LIVING PEOPLE THAT HAVE NOT SHRUNK AND ARE NORMAL IN SIZE.

Swanberg's conclusions were scientifically made upon a frozen specimen IMMEDIATELY upon death. This is THE ONLY WAY a correct comparison COULD BE MADE. His conclusions, however, even tho made AT RIGHT TIME, were based upon research AT A LOCATION (1st and 2nd dorsal) WHERE VERTEBRAE WERE LOCKED IN ARTICULATIONS; WHERE VERTEBRAE COULD NOT BE SUBLUXATED; where, regardless of how normal the size of frozen spinal nerves were IN LIFE, vertebrae COULD NOT be subluxated, therefore NO PRESSURE could be produced. The above quoted article relies upon dissected SHRUNKEN SPINAL NERVE AND SPINAL CORD substance at ALL vertebral locations, including areas where vertebrae WERE NOT LOCKED (atlas and axis) and

COULD BE subluxated as well as where THEY WERE LOCKED (below axis) and COULD NOT be subluxated.

Suppose conclusions, revealed by dissectioned dead shrunken structure, could be construed comparative as FACTS of a LIV-ING body, that relative comparative sizes of osseous vertebrae and brain and spinal cord WERE SAME SIZE in life as in death; fact remains and must be considered that atlas and axis are NOT locked, CAN BE subluxated, and COULD produce pressure, whereas all vertebrae below axis ARE locked, COULD NOT be subluxated, and CANNOT produce pressure. Other things being equal, we COULD have interference at atlas and axis and COULD NOT below them.

Anatomical language, to be understood, is loosely used and often expresses itself in direct terms as tho one structure directly effects another. In a human body, it is rare and difficult to find one structure directly effecting any other, and a majority of the corrections are adaptative or compensatory. Most symptoms and pathologies are adaptative or indirect. Most anatomical relations have intermediaries. To know anatomy is to understand that BONE structure direct DOES NOT press upon NERVE structure direct. Surrounding bone is periosteum. Surrounding spinal cord are meninges with their intermediary spaces filled with spinal fluids. What matters it that there ARE intermediate structures? It does not change fundamental of the Chiropractic principle and practice whether we say "an atlas or axis kink subluxation produces pressure which is transmitted thru the dura mater, arachnoid, piamater; being carried thru the intermediary spaces via spinal fluids which are in contact with trillions of delicate spinal nerve fibres within their sheaths," etc. A Chiropractor talks loosely about "adjusting a subluxated atlas." Atlas is the name of a bone. He does not TOUCH IT in any living being. He does deliver a force from his hands WHICH IS TRANSMITTED THRU skin, muscles, ligaments, periosteum, tissue structures, etc., BETWEEN his hands AND bone which causes an adjustment OF BONE to take place. That question often arises in Defining Clauses in State legislation, viz., "and contiguous tissues." Fact still remains that THE OBJECT IS to adjust bone, NOT "contiguous tissues;" and OBJECTIVE SOUGHT IS TO RELEASE PRESSURE, not to do anything to "contiguous tissues."

In quoted article, reference is made to several inter-spinal cord and neural canal spaces being filled with fluids and fatty substances, etc. Innate abhors a vacuum and possesses none in a human body, and this aptly applies to construction of neural canal and contents in its "spaces." There is no spinal canal "space" in the sense there are places void of substance into which other substance can be moved, thus creating open space to absorb pressure upon it at one place and release it at another. Spinal canal fluids are fluidic, giving plasticity to greater movement than would be possible with substances of a more non-fluidic character. Spinal canal fluids are in transition in character and flowing as to location, but "space" is always filled even tho with fluids. Water or other fluids ARE solids and under compression or pressure assume all characteristics of a solid pressing equally in all directions.

When fluids are under compression, they can no more be squeezed to one side away from pressure than can solids, especially when contained within a container medium structure. To place fluids BETWEEN vertebral bone outside and spinal cord nerve fibres inside, all being retained within a non-escapable container, filling containing space, does not destroy present concrete condition of a solid substance known as bone producing pressure upon a soft substance known as fluid. The well-known physics test of a barrel filled with water, with a plug in each barrel head, comes to mind. Hit one plug, in one barrel head, with a hammer, and other plug in other barrel head will pop out—force being transmitted THRU WATER which FILLED barrel.

Fluids are one of the greatest force transmitting mediums physics possesses; electricity in a storm, radio in damp air, clashing of two rocks under water, etc. The greatest pressure man can invent and mechanically exert is HYDRAULIC pressure. The greatest power value is that which is transformed by water dropping from a higher to a lower level as in water power producing plants.

That quoted article would desire reader to believe, in seeing its illustrations of atlas and spinal cord with comparative size of "cord at atlas" and "the size of the cord at the atlas is approximately the size of a cigarette," that a cord rattles around inside a big bony ring and the vertebra would need move at least a

half inch or more before it could directly TOUCH spinal cord, much less produce pressure thereon or therein. Photographs which we present, of human dissection wet specimens (See B. J. P. Chiropractic Clinic brochure), refute statement that "it must be recognized that the cord at the level of the atlas is SMALLER THAN AT ANY OTHER LEVEL until the conus medullaris is reached in the upper lumbar region." See cross-sections and form your conclusions.

"By comparing this size ('approximately the size of a cigarette') with that afforded by lumen of neural canal at atlas, one may obtain a clearer concept of degree to which atlas or axis MUST BE displaced in order to produce the cord pressure." This would be true IF two conjectures were sound.

- 1st. IF bone directly TOUCHED spinal cord and pressure had to be direct UPON IT and could not be transmitted thru other substance.
- 2nd. IF spinal cord WERE small as descriptions and illustrations lead one to believe.

In refutation to Chiropractic possibility or probability of delivering an adjustment, by comparing atlas and axis, seeing how deeply imbedded they are, surrounded by soft tissue structures, how far removed they are from superficial skin, how would it be possible for any Chiropractor to conceive HIS HANDS could TOUCH either with pressure to move them as in an adjustment? It is understood that force is transmitted thru other tissues between his hands on outside and vertebrae deeply imbedded inside before either could be adjusted.

Perhaps some of this problem involves defining our terms. What IS "spinal cord"? Does it consist only of white fibres, grey fibres; anterior horns or posterior horns? Does "spinal cord" include meninges and intervening spaces? Does it include fluids with its confines? Does the term confine itself to some or all above, or does it include ALL tissues that fill neural canal? Is there an anatomical "spinal cord" that limits to certain tissues by name? Is there a Chiropractic "spinal cord" which includes all tissues IN neural canal which fill space that COULD transmit pressure to neural fibres that transmit mental impulse? Is it possible to describe anatomical construction of "spinal cord" to deny Specific and include Chiropractic construction of "spinal cord" in releasing pressures?

IF spinal cord IS small, and IF neural canal IS large, and IF vertebra becomes subluxated, and IF intervening space IS filled with spinal fluids, and IF it creates pressure and interferences, IF pressure IS transmitted from vertebra to "spinal cord" (whatever that would be defined to be) VIA FLUIDS, then pressure would be equal on all sides or circumference of "spinal cord" and we would have one common functional disturbance, thru all fibres of that cord and in all people more or less alike except for degree. What are THE FACTS? Disease, as manifested inferior to pressure, is individual; "constipation" in one, "rheumatism" in another, "lung trouble" in another, ad infinitum. This proves individual fibre pressure, no two alike, taking us from the common-all-around-equivalent-water-pressure theory. It further takes us from the small-cord large-neural-canal idea. This leaves us where FACTS justify — that spinal cord is as large as it is IN LIFE and IS subject to osseous pressure as of its size IN LIFE.

There are only two positive ways of ascertaining truth in this mooted question:

- 1st. Clinic results on LIVING bodies by adjusting subluxations in LIVING bodies (even tho hands DO NOT touch bone and bone DOES NOT touch spinal cord), upon the principle of pressure upon LIVING spinal cord at CERTAIN places like atlas and axis ONLY when PRESSURE is said to occur; changing their positions by vertebral adjustments where vertebrae are not locked and can be subluxated, wherein spinal cord is not shrunken and is subject to pressure and releasure, both before and after adjustment; which is admittedly an abstract equation not subject to being controlled within realms of science as to transmission flow of abstract forces and as to known sizes of spinal cords.
- 2nd. Secure human bodies IMMEDIATELY after death, within one minute if possible, realizing EACH minute shrinks brain and spinal cord a fraction of a per cent according to authority quoted; freeze it solid; saw out cervical and occipital block, saw out sectional slides BEFORE ANY shrinkage has or could take place, as Swanberg did with cat. These slides would reveal scientific truth. The ONLY person, to our knowledge, who has

performed this research was Swanberg and that on a cat, at a place where vertebrae were locked and could not be subluxated, therefore conclusions reached do not settle our problem.

Quoted article premises the superficial hypothesis that conditions revealed in long-dead dissected bodies reveal same condition as would exist in living man. This is unjust. No conclusion is sound when comparisons present great discrepancies as this vital element where comparative sizes of brain, spinal cord, and spinal nerves are of normal size in living substance and considerably shrunk in dead substance.

If we may venture editorial opinion, the article is iconoclastic. It protests against conceived new thots of others, but does not replace the void with a constructive substitute. No matter how much or how little it denies, it affirms nothing. It is typically negative, for purposes of refutation of work of another, but does not create one scientific positive to offset unbalance. It is better to create one constructive principle and practice in ten years than to deny one thousand in a lifetime.

Many photographs of specimens illustrating this subject of brain and spinal cord shrinkage, credited to The Dresden (Germany) Hygienic Museum were made under dissection of specimens long after death. The length of time varied from six months to several years. All wet specimens are preserved in the purest alcohol which, according to Dr. Michael, continues to shrink tissue structure. Portraying size they do now, it is easy to understand that spinal cord size was greater than illustrated when dead. If they represent this size, following death, what must they have been in life, before death and alcoholic shrinkage took place?

It is conceded that finest anatomic charts, anatomic dissections and wet specimens of anatomy come from Germany. This work is practically exclusively done in The Dresden Hygienic Museum under the guiding hand of Direktor Guenther and under able directorship of that master technician, Dr. Michael. This institution is the first and last word in scientific research and exploration into new anatomic, physiological, and pathological fields of the world. Dr. Michael, with whom we were in conference and who has conducted all research (which we went to Germany to secure) pre-

pared and conducted all dissection from which photographs were made which were and are used in Spalteholtz Anatomy, and all know what they are to anatomy.

This institution in Germany receives government endorsement, encouragement, and support in its work. In special cases, where new work is desired, regular rules are set aside, special rulings being made. In special cases where government officials are convinced the purpose of human science can be served, they issue orders for bodies so new work can be conducted contrary to usual uses, thereby making special allowances.

In United States, usual state regulation of unclaimed bodies is that when secured by an undertaker, he must embalm the body and hold some sixty days pending being claimed by possible relatives. If unclaimed within sixty days, he must turn body over to State University for research material. University reembalms body with fluids which show arteries and veins and keep tissue structure flaccid for dissection purposes. They must in turn hold body six months, pending possible claimage by long-lost relatives. After this period, body can be used in any manner desired, after which its portions must be disposed of in a quicklime grave.

Prof. Borst (Munich, Germany, Pathologic Institute) and himself one of the famous brain and nerve specialists of the world, states that the medical law of Germany is that unclaimed bodies cannot be touched for twenty-four hours after death, after which they can be post-mortemed only in such manner as will permit respectable burial when finished.

Direktor Guenther (Dresden, Hygienic Museum) says this twenty-four-hour rule can be and sometimes is set aside and unclaimed bodies can be used AT ONCE following death, upon proper showing that ends of science are being served.

Approximately one year previous to publication of article we herein quote, opening up question of relative size of spinal cord in relation to comparative size of neural canal, applicable to Chiropractic problem as to whether or not an atlas, axis, or other vertebral subluxation could or could not induce pressure upon one thru the other, we had talked the matter over with Prof. McEwen, Professor of Pathology of State University of Iowa. Permission had been secured to use their laboratories to conduct further research.

The manner of presentation was:

- a. We desired to set up an X-ray outfit in their cadaver reserve room where they retain bodies pending being called for use.
- b. We desired to take A-P and lateral views of all dead bodies to secure X-ray pictures of positions of occiput, atlas, and axis. (Note, we do not say "subluxations" for such they would not be in dead bodies.)
- c. Having X-rayed approximately 150 bodies, X-ray being identified with bodies from which taken, we would then pick those which most clearly illustrated conditions we most desired to work with, viz., those which showed greatest displacement of atlas to left or right in wedge-side-slip, either anterior superior or anterior inferior, and an axis which showed greatest displacement of odontoid into neural canal.
- d. We would then take these bodies and make microscopic slides from three directions:
 1. From above downward, cutting from anterior-posterior beginning superior to magnum foramen and ending at inferior axis. As these sections would be about 1,000th of an inch, it would require about 1,500 sections.
 2. From left to right, cutting from before-backward, beginning external to neural canal and continuing thru until past odontoid process. As these sections would be about 1,000th of an inch, it would require about 1,000 sections.
 3. From left to right, cutting from anterior-posterior laterally, beginning superior to magnum foramen and continuing until thru the neural canal until reaching posterior arches of atlas and axis. As these sections would be about 1,000th of an inch, it would require about 1,500 sections.
- e. Then have an enlarged micro-photograph made of every section consecutively numbered from each of the three directions, making all-told about 4,000 enlarged photographs.
- f. Then expose about five feet of motion picture film of each picture, beginning at the most superior or lateral No. 1 picture of each direction, and continuing thru until finished. The reproduction of this film would then give an actual running picture of EXACTLY what existed upon spinal cord, under pressure of a vertebral misplacement.

- g. Precede all this with several feet of X-rays of individual whose microscopic enlargements would follow.

In all this, Prof. McEwen was willing and ready to assist. However, he offered two objections to its being done and exhibiting what we WANTED to show:

- 1st. The existence of vertebral misplacement such as we claimed was common and usual to most everybody, he said was extremely rare, therefore difficult to find in any bodies on hand.
- 2nd. Brain and spinal cord shrinks fully fifty per cent within two hours after death, therefore bodies dead and embalmed for eight months, which we would work on, could not show pressure even if vertebral displacement did exist therein.

Obviously, the first objection was the question in dispute. Medical men deny its frequent occurrence, saying it is rare. Chiropractors assert its frequent occurrence, denying its rarity. THAT was ONE object of desiring to conduct THIS research TO SETTLE this dispute. If once conducted, it would give THEM as well as US facts, where it would no longer be a question of opinion. It would be a knowledge of science.

Obviously, second objection put the entire question into the impossible field to prove; for, while the work COULD BE conducted, no amount of work conducted on bodies dead eight months or more, with brains and spinal cords shrunk fifty per cent or more, would prove what we desired to seek; for it was admitted that while brains and spinal cords shrunk under natural conditions, embalming fluids would continue the shrinkage.

Prof. McEwen did submit that there WAS one way by which the subject matter COULD BE settled, viz., securing bodies IMMEDIATELY upon death, quick freezing them, cutting off the head and neck, sawing out the block, making frozen sections and photographing them before they thawed. This they could not do because they could not work on bodies IMMEDIATELY after death, contrary to law for unclaimed bodies. He did, however, recommend a Prof. Mannhardt in New York, who had formerly been Professor of Biology of New York University, saying HE could do it IF anybody in the United States could.

Our next visit was to Prof. Mannhardt who admitted he was unable to conduct such research in New York because of inability to get bodies IMMEDIATELY after death. He, however, recommended Direktor Guenther of the Dresden Hygienic Museum. There was nothing to do but go to Dresden.

Enroute to Germany, on the North German Lloyd Liner, S.S. Bremen, we talked to the ship's physician who recommended Dr. Borst. A conference with Prof. Borst brot forth information above credited to him. Dr. Borst was inclined to agree with Prof. McEwen that the brain and spinal cord, in his opinion, did shrink approximately fifty per cent within two hours after death. Prof. Borst agreed the only way subject matter could be proved would be to freeze bodies IMMEDIATELY upon death, making sections therefrom, and comparing size of spinal cord with size of neural canal. This research HE could not conduct because he could not secure bodies IMMEDIATELY after death; neither could he "make respectable burial after cutting off head and neck."

Dr. Borst also recommended Direktor Guenther of Dresden, saying he alone, of all medical institutes in Germany, could do it IF it could be done.

Our next visit was to Direktor Guenther who quickly called into conference Dr. Michael. To them our problem was submitted.

The Dresden Hygienic Museum is more than its name implies. It is a research institute, conducting any and all phases of human and comparative research which directly or indirectly concerns the welfare of man. Their institute is housed in a tremendous fire-proof modern building in the large park in Dresden. It consists of several floors, many halls filled with exhibits of every conceivable study of man. Practically all great human anatomical, physiological, and pathological research now a matter of medical record has been conducted and made here. It is interesting to know the glass human figure in the Halls of Science at Chicago is a conception and reproduction of Dr. Michael of this institute. To present, then, an anatomical problem to this organization, would be like presenting a Chiropractic problem to The PSC — more than likely it HAD BEEN worked out years ago and was on exhibit in some of their halls.

The problem submitted to Prof. McEwen, Prof. Borst, Direktor Guenther, and Dr. Michael, was: What was the relative and comparative size of spinal cord and neural canal in and around region of magnum foramen of occiput, atlas, and axis, in and during life up to moment of death, in normal? What were the facts as regards pressure at magnum foramen, between magnum foramen and superior of atlas, in neural canal of atlas, at foramen between atlas and axis, when there was a left or right wedge-side-slip of atlas; when atlas was superior or inferior or anterior, when axis was posterior and inferior with odontoid crowding into neural canal, in and during life, up to moment of death, with misplacement as stated?

To these seemingly simple questions, there was NO answer. This information had never been asked before. Knowledge of possibility of such conditions was unknown. Necessity for information of normal comparative size of spinal cord and neural canal had never existed. They were NEW questions in science. No research had EVER been conducted along those lines.

Prof. McEwen, Prof. Borst, Director Guenther, and Dr. Michael all conceded the newness of entire subject matter. Dr. McEwen said such could not exist except in rare cases. Drs. Borst, Guenther, and Michael readily admitted existence of our fundamental facts and great probability of pressure, when specimens and X-ray cases were submitted. The next question was to prove it as the term is known in science. All admitted it would be a new step forward in science. The latter two admitted such research had never been done in their institution; and it is certain IF IT HAD EVER BEEN DONE anywhere in the world, it would have been done here, for we can conceive of no human question that could escape their research laboratories—the most perfect and complete in the world.

Dr. Michael who is the working technician of the Institute, says that it is his opinion that brain and spinal cord shrink approximately somewhat between ten and twenty per cent within four hours after death, and from that time on continue to shrink more slowly. He further stated he could not get a clear microscopic spinal cord slide of true proportions after four hours of death. He took us into the museum and showed research he had conducted of specimens which showed nerve cells, ligaments, and bone structure which HAD shrunk—greatest shrinkage oc-

curing in nerve structure, much less in ligaments, and altho some, but very slightly and much less in ratio, in bone.

Dr. Michael admitted frankly they had never made a sectional brain or spinal cord specimen IMMEDIATELY after death, either in animal or human, neither did they know of its ever having been done by any scientific laboratory. It is, therefore, reasonably certain this question of shrinkage, while an admitted and known scientific fact, none know or can answer the question of percentage of shrinkage IMMEDIATELY after death. None KNOW what it is AT DEATH, so none know what the exact percentage of shrinkage IS and value of time in the process. That there IS shrinkage in disease in life, and long after death in normal, is positive.

At first the question of the specific principle and practice was one man's theory. Few worried about it until it grew, was being universally accepted and proving to be clinically sound. The centralization of all subluxations and all adjustment to the occipital, atlas, and axis region, seemed preposterous at first. In ratio as its followers clinically proved it, fear was established in minds of those who arbitrarily preferred to follow the older meric order of Chiropractic. They either had to clinically follow suit or disprove it along scientific lines.

It was combatted by older group who contended its impossibility because of miniature size of spinal cord in relation to gross size of neural canal, thereby suggesting impossibility of atlas or axis subluxations producing pressures and interference. To prove scientific correctness of clinical proof by scientific proof, became a necessity.

Many in our profession at first regarded this as another phase of a long-existing controversy of no or little Chiropractic or scientific importance because it was believed to be more or less personal in its nature. This subject has long transcended the personal aspect; in fact, was in our research a year before question of contradiction arose. It has now reached importance of a fundamentally new subject even new to much proof which we later submit, and has grown to the proportions of a service of tremendous importance to the human race. It has stepped out of hands of two interested parties and is being accepted and will be proved by the greatest scientific laboratory in the world. It

is no longer a dispute; it is a property right belonging to humanity and the scientific world.

It is certain that in the living there is vertebral subluxation, creating pressure and interference, followed by dis-ease which involves spinal cord at least, and spinal cord shrinks in size, shape, circumference, and diameter.

How many dis-eases and what dis-eases involve spinal cord and induce it to shrink? What particular type or types? Is there shrinkage in hemiplegia, paraplegia, anterior acute poliomyelitis, meningitis, syphilis, rickets, locomotor ataxia, etc.?

That there IS shrinkage in spinal cord of persons suffering from certain diseases while alive, is proved by slides made after death of those spinal cords, as compared with sizes of sectional slides made of people after death who did not have those dis-eases. That there IS shrinkage in spinal cord BEFORE death, from disease, is obvious from slides made of those who suffered with disease and those who did not suffer with disease, as made after death.

A vital question is: Is there shrinkage IN BRAIN, before as well as after death, from disease? Putting the question another way: Is there shrinkage SUPERIOR TO atlas subluxation same as there is BELOW atlas subluxation?

That disease exists in spinal cord and thereby shrinks in size, shape, circumference, and diameter, in life, is obvious. That dis-ease must be caused by subluxation with occlusion, pressure, and interference, is obvious. That subluxation-occlusion-pressure-interference cannot be INFERIOR to effect, but MUST be superior to location of symptoms and pathologies, is further obvious. This statement must embarrass the spinal balance cord group, the general mechanical correction group, as well as the basic technique pelvis group. This shrinkage of spinal cord condition found high up in cervical region strengthens the specific principle of having CAUSE superior to effect.

It should need no argument, but the idea does need presenting, that a small tube, under like pressure, could not transmit same quantity of fluid as a large tube under equal pressure. Likewise, a small copper wire, under like voltage, could not pass same wattage as a large copper wire under equal voltage. So, equally, a shrunken spinal cord, under usual brain mental impulse pres-

sure, could not transmit same quantity of mental impulses, per second or hour of time, as a normal spinal cord without shrinkage, with usual brain mental impulse pressure per second or hour of time.

As a subluxation produces pressure, inflammation, friction, and an adaptative cicatrix or scar secondary pressure-interference is set up, so does a subluxation produce pressure, pathology of spinal cord, shrinking it in size, shape, circumference, and diameter, thereby creating secondary reduction of its transmitting a normal quota value. To reduce osseous subluxation-occlusion-pressure-interference by adjustment to normal situ, is a comparatively quick and easy procedure, method, or process; AFTER WHICH it might take weeks or months for Innate Intelligence to break down scar tissue or rebuild normal size of spinal cord so mental impulses, ONCE RELEASED from primary or osseous vertebral subluxation pressure, COULD GET THRU scar tissue or OVER AND TRANSMIT THEM THRU spinal cord when regrown to normal size. Health, obviously, cannot be expected until mental impulse has reached tissue cells, in sufficient normal quantity, in sufficiently normal length of time, to rebuild and regrow health within them. This could not be expected so long as spinal cord has shrunk below normal carrying capacity.

A spinal cord that IS shrunk cannot carry a normal capacity, even if the normal carrying quota were possible to get to it, even into it, but not thru its length to periphery.

Suppose a case of shrunk spinal cord (tabes dorsalis) got an adjustment, subluxation was corrected, occlusion restored, pressure released, and possibility of normal restoration of transmission has been returned. How much time is required to rebuild spinal cord back to normal size, shape, circumference, and diameter, before it CAN carry normal quantity READY to be transmitted and that IS getting TO IT but cannot flow THRU it because of diminished size?

Can we say that cases without spinal cord shrinkage are those which recover quickly, and those where there is shrinkage are slow? May this not account for why it takes time to get some cases well; and more in some cases than others? May this not further account for why it seems "necessary to keep on adjusting," with no subluxation existing, even tho our case is still sick?

Some of our profession may cite this as a reason for study of symptomatology and pathology and recognition of same creating a necessity for diagnosis of cases, to ascertain which cases have this or that in which spinal cord shrinkage HAS been known to exist.

Diagnosis of ANY case is fraught with complications and complexities which make it uncertain to be correct in ANY case. If spinal cord section is the final diagnostic proof, it would be impossible to be diagnostically certain in life. Even if diagnosis WERE certain, the degree of shrinkage would be questionable. Even tho degree of shrinkage WERE known, it wouldn't make any difference in speed of returning health nor would it release information which would help adjustment or restoration of transmission. At its best, it gains no end. At its worst, it is useless.

THE SPECIFIC SUBLUXATION WET SPECIMEN

Skull, atlas and axis. Calvarium removed. Transparency.

This is not artificial, manufactured specimen. This is a natural wet specimen, put thru the "Spalteholtz method" of dissolution, named after the man who developed this method who is also the author of Spalteholtz Anatomy.

The specimen was put thru a series of chemical solutions, taking approximately one year, in which bone materials were taken out, leaving animal matter. This still leaves original soft tissue shape, size, position, and contour.

The Spalteholtz transparency dissolution process takes out inorganic material and leaves organic. This is the opposite to preparing an osseous specimen as in a skeleton.

The purpose of preparing this specimen in this rare manner was to make TRANSPARENT an occiput, atlas, and axis, to reveal its subluxations EXACTLY as in the living individual. Spinographs make possible the study of subluxations in living persons, which can be and are taken from every direction EXCEPT from above downward or below upward. That, this specimen reveals.

Specimen was taken from a body IMMEDIATELY (within five minutes) upon death, atlas being anchored to occiput and axis anchored to atlas. Anchoring can be seen with cat-gut thread material at various places around occiput, atlas, and axis.

(See B. J. P. C. Clinic brochure.) Upon being anchored, it was placed into solutions to dissolve out bone, to leave flesh, to make transparent for the purpose of showing an occipito-atlantal-axial subluxation EXACTLY AS IT WAS DURING LIFE.

The purpose of research is to investigate facts, denying diluting theories, compiling information which reveals true data. This accepts or rejects certain theories into a proved principle and certain practices as proved sound. Does man, when alive, carry a subluxation, such as the Chiropractic principle and practice hypothecate? Does man, WHEN ALIVE, have a vertebral subluxation of atlas or axis such as we think we have found by palpation, or we think we interpret from shadows of spinographs? If so, where and how! To these questions there is no positive answer. When man is dead, he is NOT alive. When he is ALIVE, he is not dead! When he is ALIVE we rely on spinograph. When he is DEAD we relied upon spinal column strung on cat-gut or dissection and its rigor mortis conclusions. It is easy to take bones, devoid of meat, and move them into a hypothetical subluxation and affirm that such is what does exist in the living. It is easy to carve sections of anatomy from a cadaver and affirm or deny vertebral subluxation. It is even possible to dissect specimens from bodies long dead, after rigor mortis and contracted ligaments, etc., have pulled bones out of alignment, present them as subluxations, etc. None of these answer the researchers' question of whether there is or is not a vertebral subluxation in the living and, if so, where and how.

The nearest approach to the positive position of researching facts is to take a person IMMEDIATELY after death, anchor bone to bone EXACTLY as they were positioned in life, put them into immediate dissolution, making the specimen transparent so one can study actual condition AFTER death as IT WAS during life. That is what this specimen does.

This specimen is the next-to-the-best connecting link as proof of atlas rotated wedge-side-slip subluxation. Palpation is largely conjectural; spinographs are shadowgraphs of living subluxations, but they are of one direction or angle only, viz., A-P, lateral, or diagonal, being impossible to take from superior-inferior. But here is a third dimension, superior-inferior, transparent, visual subluxation as it was in life — immediately after death. It reveals ALL

directions simultaneously, transparently. There could be but one more step to proving proof — the living proof — and that we cannot have.

Atlas is not only a left wedge-side-slip subluxation, looking at the specimen from superior to inferior, but is also in a rotation. Left transverse process of atlas is inferior and right transverse process is superior to a plane level line drawn across atlas. Looking at specimen from inferior to superior, the right transverse is immediately on a plane line to right mastoid; left transverse to the inferior of the apex of right mastoid process. Looking from superior to inferior, the neural canal has been decreased in size and changed in shape by the moving of atlas to left from median anterior-posterior line. Rotation of atlas on condyles is obvious, best seen from a lateral view looking downward upon specimen. The listing is AIL-L.Lo.

No matter from which side you study specimen, it can best be seen in transparent values by placing a white sheet back-ground on opposite side from that from which you are looking, throwing bright light on background, reflecting light THRU specimen from rear.

This is the first and, to our knowledge, the only specimen of its kind. It was made under specific instructions given while in Germany in 1934. We stipulated (a) the specimen must be taken from the immediately-dead body, not more than five minutes after; (b) osseous specimens must be immediately anchored in position they were BEFORE AND AT MOMENT OF DEATH; (c) dissolution process must be carried on without interference or change of position of any segment. These instructions were carried out to the exactitude of scientific research work.

Specimen was taken IMMEDIATELY following death, anchored AT ONCE, and prepared as you see it.

The question is raised: "Heat expands, cold contracts and shrinks. Why, in freezing this case, did not shrinkage take place sufficiently great to destroy objective you were seeking?"

SCIENCE DIGEST (April, 1937) contains the answer:

"These Quick Frozen Foods, Based on the book *The Freezing Preparation of Fruits, Fruit Juices, and Vegetables*, by Donald K. Tressler and Clifford F. Evers.

"All living things are built up of cells. In this respect turkeys and strawberries and man himself are the same. Each cell is a microscopically minute walled unit in itself. When an article is frozen slowly, water is withdrawn from the protoplasm within the cells and forms large ice crystals between the cells. These crystals press against the cell walls and break them down. The living matter or protoplasm within the cells coagulates because of the loss of water.

"Quite different is the phenomenon which takes place with very rapid freezing. Only small crystals are formed and these are in the interiors of the cells. They do not expand against the cell walls and break them. Everything that was in the turkey or the strawberry remains just as it was. When such a food is thawed its structure remains essentially as it was frozen."

"When a quick frozen product is thawed practically no water results. It is still shut up in the cells where it was originally, with all its suspended salts in place.

"This quick freezing of fruits and vegetables is a relatively new commercial development which offers definite advantages to the consumer since it preserves the taste, quality and vitamin content of food almost indefinitely.

"There are a number of ways to accomplish quick freezing, or in more scientific terms, a rapid extraction of heat."

THE CHIROPRACTIC PRINCIPLE

A CONCUSSION OF FORCES — an external invading force AND an internal or resisting force, ACCIDENTALLY applied to a human body — clashes; and as a result, a fracture, dislocation, vertebral subluxation or vertebral misalignment CAN occur to bone structures.

THE VERTEBRAL SUBLUXATION occludes, reduces, or makes smaller size of openings between vertebrae thru which nerves or spinal cord pass on way from brain to portions of the human body;

—which compresses, squeezes, or produces constructive pressure around spinal cord or spinal nerves which pass thru these openings between vertebrae on their way from brain to portions of human body;

—which offers resistance to, or introduces interference to normal quantity of nerve force, or nerve energy flow, which flows thru, over, or into these nerves on their way from brain to body;

—which reduction in quantity flow, from normal, does not reach periphery, or distal endings of those nerves in body tissue cells or body organs;

—which reduction, from normal quantity, slows action of body tissue cells or body organ actions in exact ratio as normal quantity is lowered to an abnormal level;

—which decreases quantity and quality of these tissue cell or body organs should produce as products or by-products;

—which, given time for destruction, to accumulate, develop and grow these effects, is a condition called dis-ease.

THE CHIROPRACTIC PRACTICE

A CONCUSSION OF FORCES—an external or invading force AND an internal or resisting force, INTENTIONALLY applied by a Chiropractor—clashes; as a result, a vertebral subluxation is adjusted or restored to its former normal position.

THE VERTEBRAL ADJUSTMENT opens, increases size of openings between vertebrae thru which nerves pass on way from brain to portions of human body;

—which releases, reduces constructive pressure around spinal cord or spinal nerves which pass thru openings on their way from brain to portions of human body;

—which permits a normal quantity of nerve force, nerve energy, to flow thru, over, or into those nerves on their way from brain to portions of human body;

—which increases, from below normal TO normal, reaches periphery or distal endings of those nerves in body tissue cells or body organs;

—which increases, from below normal TO normal, increases action of those tissue cells or body organ actions, in exact ratio as it is increased or stepped up to normal level;

—which increases quantity and quality of these tissue cells or body organs should produce as products and/or by-products;

—which, given time for restoration, construction and rebuilding to develop, accumulate or grow, is a condition called ease or health.

THE COMPLETE, ALL-INCLUSIVE AND ALL-EXCLUSIVE CHIROPRACTIC PRINCIPLE AND PRACTICE IS AS SIMPLE AS THAT. MORE OR LESS THAN THAT ENTERS THE FIELD OF SOME PRINCIPLE AND PRACTICE OTHER THAN CHIROPRACTIC!

If we asked you whether you "believed" or thot there was, or knew there was a force, energy, or intelligence which governed and is governing this Universe, you would admit such.

We might differ as to whether to CALL it Nature, The Great Spirit, God, or Jehovah, or some other term. We might differ as to who was Its chosen one who was here who came to save us. We might call him Christ, Mohammet, Confucius, Buddha, etc.

But few would flatly DENY such. A very few MIGHT, saying none such comes within the purview of science.

If we asked you whether you "believed" or thot there was, or knew there was a force, energy, or intelligence which governed and does govern the various units of growing, living complete units such as animals and man, you would admit such.

We might differ as to interpretations of words, or how such worked, or why. But few, if any, would flatly DENY such. A very few MIGHT, saying none such is what we think it is; others might deny your construction; but few WOULD, saying none such comes within the purview of science.

We are speaking of the ordinary, man of the street, the man who uses common sense which is very uncommon.

We might be in the position of Edison, Marconi, Steinmetz.

We were called to see Mr. Edison professionally. He was "HARD of hearing," we prefer "hard" of hearing because there is an "ease" of hearing as well, according to whether there is presence or absence of electrical potential energy flow that makes either possible.

After we determined his age was against him, and he refused to devote the time to his recovery, we asked: "What happened when we pushed button on wall and light appeared in ceiling? Did electricity flow THRU or OVER wire?" He said, in his opinion, it flowed THRU wire.

Later, we had occasion to meet Mr. Steinmetz of General Electric. We asked the same question. He said, in HIS opinion, it did not flow THRU wire, but flowed OVER wire. Then, said we, a hollow wire could carry more than a solid wire. To this he agreed.

Still later, we met Marconi and asked him same question. He said, "I don't agree with Edison or Steinmetz. It does not flow THRU or OVER wire. In fact, NOTHING FLOWS. We get

effect at other end of wire by 'atomic pressure' much like a lineup of billiard balls. Hit one at one end, and other one at other end rolls off, balls in between standing still."

"Hard of hearing" is like a telephone which can be "dead" if there is no current flowing thru it; or it does carry messages if current DOES flow thru.

We once had an M.D. here as a student. We were discussing Innate Intelligence. He spoke up, saying: "If you don't mind, I don't believe there is any such existing in us. I am a scientific man, thinking scientifically, and I believe only scientific issues which I can prove."

We replied: "We finished school in the half of first year of high school. You are a graduated M.D. of a University; you have taken various post-graduate courses in this country, as well as Heidelberg, Leipsig, etc. Modestly, you admit you are MORE educated than we." To this he agreed.

We then said: "Now that you have ADMITTED you are MORE educated than we, PROVE IT!"

There are two kinds of proof: logical and material.

Today is Thursday. This is May. It is warm today. There is a God in the Universe and an Innate Intelligence in man. These are logical proofs.

This is wood; that is paper; this is a book; that is steel, copper or iron, are material proofs.

THE MOOTED ENERGY QUESTION

The question of existence of human energy has long been mooted and disputed amongst anatomists, physiologists, symptomatologists, and pathologists. Some denied existence of ANY human energy; others that it might exist in a crude way; others that it was extremely limited in its field of action, etc.

Kirke, in his *HAND-BOOK OF PHYSIOLOGY*, revised by W. D. Halliburton, M.D., in the Preface says:

"The question arises, however, is there anything else? Are there ANY OTHER laws than those of physics and chemistry to be reckoned with? Is there, for instance, such a thing as VITAL FORCE? It may be frankly admitted that physiologists at present are not able to explain all VITAL phenomena by the laws of the physical world; BUT AS KNOWLEDGE INCREASES IT IS MORE AND MORE ABUNDANTLY SHOWN THAT THE SUPPOSITION

OF ANY SPECIAL OR VITAL FORCE IS UNNECESSARY; and it should be distinctly recognized that when, in future pages, it is NECESSARY TO ALLUDE to vital action, IT IS NOT BECAUSE WE BELIEVE IN ANY SPECIFIC VITAL ENERGY, but merely because the phrase is a convenient one for expressing something that we do not fully understand, something that cannot at present be brought into line with the physical and chemical forces that operate in the inorganic world."

In contrast to this, Morat, in his *PHYSIOLOGY OF THE NERVOUS SYSTEM*, says:

"In every living being a double current of matter and energy is present, running in a definite direction which never varies.

"In the nervous system all movement induces sensation, all sensation induces movement.

"It is obvious that a being endowed with life possesses characteristics and presents manifestations for which in dead matter we can find no parallel:

"Here is brought before our notice a fact of a purely internal nature, eluding observation as it is generally understood in science, but which common sense constrains us to attribute to beings resembling ourselves, while at the same time denying it to all objects in which this resemblance cannot be discerned.

"This reciprocal link not only controls the relations of the living being with all surrounding objects; it is also, and simultaneously, the distinctive feature of its organization.

"From this double link, so frail in itself, and yet so intimate, proceeds the unity of beings endowed with life."

"In the past and even at the present time, physiology has overlooked and still overlooks, the fact of the being which it studies possessing sensibility; and has in every case refused to acknowledge the sensibility as a casual or conditioning influence in the determinism of vital phenomena.

"It has carefully arranged the balance-sheet of the forces of the organism, while taking no interest in the function which regulates their employment.

"As physical science finds no place for sensibility, neither has physiology accorded it one. The time seems to have arrived for a reaction against these exaggerations.

"In both cases the nature of the link is unknown to us; but none the less does this link exist, and is in biology the foundation of all that distinguishes it from pure physics."

Here is one authority DENYING existence of human energy, another authority ADMITTING that "common sense constrains"

him to admit even though it was "eluding observation as it is generally understood in science"; and in "both cases the nature of the link is unknown to us".

The THEORETICAL Chiropractic principle and practice as against the SCIENTIFIC Chiropractic principle and practice condition existing in our ranks, agrees with the necessity as stated in the Minority Report of a SPECIAL COMMITTEE appointed by the Massachusetts Legislature; who, in their report, in 1938, said:

"Such evidence of the benefits of chiropractic was purely SUBJECTIVE, however; that is, the proof was that the patient BELIEVED himself cured or helped. No evidence was brought forth of any case in which a cure had been verified by a medical doctor. The evidence of all medical doctors was THAT NONE OF THE CLAIMS OF THE CHIROPRACTORS HAD BEEN PROVED; that the chiropractic THEORY of disease had been investigated and found of no value; and that in many cases the patient will not only waste money on a treatment of no value, but even may be seriously injured through the treatment, or because it delays the necessary medical care."

And here we were, stepping into a field to prove or disprove by scientific means its reality and the extensive field we hoped we could prove our science covered.

It was with no little hesitation, trepidation, and fear that we dared step boldly into a field of disproving the denial of one group of anatomists, physiologists, symptomatologists, and pathologists; desiring to prove assertions which were made by another group without proof.

In 1907, we wrote our first articles questioning the correctness of the "sympathetic nervous system", with its ganglia, dendrites, etc., and its physiological explanation of function of reflex action, etc. At that time we SUGGESTED the seeming necessity of a direct brain-cell-to-tissue-cell nerve fibre continuity, conveying a continuity mental impulse supply between brain cell and tissue cell in an efferent and afferent continuity circuit.

We continued to hypothesize, between 1907 and 1935 that ease was because of continuity flow of energy current thru a continuity circuit between brain cell and tissue and reverse circuit; AND the moment this continuity energy current circuit WAS REDUCED, INTERFERED WITH, or RESISTANCE OFFERED

TO ITS FLOW, that moment dis-ease began at periphery of efferent nerve.

We further continued to hypothesize between 1907 and 1935 that ease could be and would be re-established at periphery of efferent nerve when continuity of energy current flow was re-established thru this continuity of brain-cell-to-tissue-cell nerve fibre.

It is interesting to note now, in 1951, some 45 years later, that our research along this line has definitely proved not only our continuity brain-cell-to-tissue-cell nerve fibre circuit to have been sane and sound, but that thru it also flowed a continuity energy potential which was also proven scientifically sound.

When we entered this field, desiring to prove or disprove our postulates, we had to prove or disprove authorities on

- a. existence of human energy
- b. it existed as a pre-determining factor in anatomy, physiology, symptomatology, and pathology
- c. its absence was a pre-determining factor in all symptomatology and pathology
- d. it not only existed in quantity but expressed itself in quality
- e. it had a source, a traveling dual direction, and a place of expression
- f. it flowed in definite cycles
- g. it existed in measurable quantities, varying under varying conditions
- h. but as our research progressed we went way beyond establishing energy, as listed, but we went into the field of proving existence of mind, of thot-flashes, intelligence, education, insanity, etc.

"SYMPATHETIC" NERVOUS SYSTEM AND "REFLEX" (REFLECTS) ACTION

Before going into the sympathetic nervous system and reflex action, let us back up to what medicine is.

Medicine is a MATERIAL science.

Medicine has no philosophy because that goes into the realm of the abstract.

Medicine is not an art because it is empiric and arbitrary.

Notwithstanding medicine uses IMMATERIALITIES to prove MATERIALITIES, they still deny its existence with human bodies.

Kirke in his Hand-book of Physiology, revised by W. D. Halliburton, M.D., in the Preface says:

"The question arises, however, is there anything else? Are there ANY OTHER laws than those of physics and chemistry to be reckoned with? Is there, for instance, such a thing AS VITAL FORCE? It may be frankly admitted that physiologists at present are not able to explain all VITAL phenomena by the laws of the physical world; BUT AS KNOWLEDGE INCREASES IT IS MORE AND MORE ABUNDANTLY SHOWN THAT THE SUPPOSITION OF ANY SPECIAL OR VITAL FORCE IS UNNECESSARY; and it should be distinctly recognized that when in future pages, it is NECESSARY TO ALLUDE to vital action, IT IS NOT BECAUSE WE BELIEVE IN ANY SPECIFIC VITAL ENERGY, but merely because the phrase is a convenient one for expressing something that we do not fully understand, something that cannot at present be brought into line with the physical and chemical forces that operate in the inorganic world."

They USE ELECTRICITY — which is an abstract — to prove their concrete.

Medicine consists of the things "they can prove", meaning PHYSICAL or MATERIAL proof — things they can take into a material lab and PROVE, materially

—things like chemistry and physics.

Two kinds of proof:

—physical — a chunk of iron weighs 2 lbs.

—abstract — electricity or thot that meets no tests of physics.

They DENY thot, yet USE IT.

They DENY mind, yet USE it to DENY it.

They DENY mental impulse, yet could NOT LIVE without it.

They DENY nerve force, yet USE IT when they deny it.

They become baffled, run into "phenomena" when they deny existence of a reality.

How do they account for what nerve force does when they deny there is a nerve force?

Let us study evidence and SEE HOW THEY explain the unexplainable.

"Let me quote the last Dunglison's Medical Dictionary, which is standard in every college. In speaking of this system, he says 'Sympathetic, depending on sympathy. Sympathetic affections of the organs are those morbid phenomena that supervene WITHOUT ANY MORBIFIC CAUSE.'"

(Page 76-77, The Science of Chiropractic, Vol. II, 1917, by B. J. Palmer, D. C., Ph.C.)

"'Sympathy,' Dunglison (23rd Edition, p. 1082) says: 'Sympathy. Connection existing between the action of two or more organs more or less distant from each other, so that affection of the first is transmitted secondarily to the others, or to one of the others, BY MEANS UNKNOWN.'"

(Page 77, The Science of Chiropractic, Vol. II, 1917, by B. J. Palmer, D. C., Ph.C.)

"Dunglison says 'The great sympathetic is a distinct nervous system, supplying the organs of involuntary motion; for although communicating with both brain and spinal marrow, IT DOES NOT SEEM TO BE IMMEDIATELY UNDER THE INFLUENCE OF EITHER. ITS SPECIAL FUNCTIONS ARE NOT YET WELL UNDERSTOOD.'"

(Page 77, The Science of Chiropractic, Vol. II, 1917, by B. J. Palmer, D. C., Ph.C.)

"Cunningham's Text Book of Anatomy, p. 702, in speaking of the 'Sympathetic Nervous System,' says: 'The sympathetic nervous system consists of A PAIR OF ELONGATED CORDS, EXTENDING FROM the base of the skull TO the coccyx; connected on the one hand by a series of branches to the spinal nervous system, and on the other hand giving off an IRREGULATED series of branches to the viscera.***THE DISTINCTION IS NOT ABSOLUTE.***The non-medullated fibres in the sympathetic system ARE DERIVED FROM the axons of the sympathetic ganglion cells. Some fibres APPEAR to contribute to the formation of the comisural cord.

"The Morphology of the Sympathetic System. From a consideration of its structure, functions and development, there APPEARS to be TWO SEPARATE structures represented in the sympathetic nervous system—the spinal and the sympathetic elements—it is certain that the cells and fibres of the sympathetic system possess A VITAL ACTIVITY APART FROM THEIR CONNECTION WITH THE CENTRAL NERVOUS SYSTEM. The phylogenetic relation of the sympathetic and cerebrospinal elements in the system IT IS IMPOSSIBLE TO DETERMINE. It MAY BE that the sympathetic system is representative of an ANCIENT ARCHITECTURE INDEPENDENT of the cerebrospinal nervous system, the materials of which are utilized for a modern nervous system; EXAMINED IN EVERY LIGHT, IT POSSESSES FEATURES WHICH EFFECTUALLY DIFFERENTIATE IT FROM THE CEREBRO-SPINAL SYSTEM.'"

(Page 77-78, The Science of Chiropractic, Vol. II, 1917, by B. J. Palmer, D. C., Ph.C.)

"Dutton's Anatomy, 1892 Edition, p. 327, says: 'The sympathetic nerves control the circulation of the blood, respiration, nutrition, and all the various

vital processes. They are the involuntary nerves, NOT DIRECTLY UNDER THE CONTROL OF THE HUMAN WILL."

(Page 79, The Science of Chiropractic, Vol. II, 1917, by B. J. Palmer, D. C., Ph.C.)

"Werner Spalteholtz's 'Hand Atlas of Human Anatomy,' Vol. 3, p. 763, says: 'Systema Nervorum Sympathicum is formed: 1. By a chain of ganglia ON EACH SIDE OF THE SPINAL COLUMN, THE GANGLIA BEING UNITED WITH ONE ANOTHER by vertical bundles of nerve fibres to form a longitudinal cord,***' A ganglion is a knot-like enlargement upon the course of a nerve and each IS SUPPOSED TO BE AN INDEPENDENT center for the formation and dispensation of nerve power. 'Ganglion they have been REGARDED as small brains, or centers of nervous action, independent of the encephalon, and intended exclusively for organic life. Ganglia are chiefly composed of vesicular neurine, and appear to be concerned in the formation and dispensation of nerve-power.' (Dunlison.) Upon each 'spinal nerve' is one of these and at many remote points are many 'centers.' Center—'A collection of nerve cells to which external impressions are carried and whence impulses are sent out.'

"Reflex CENTER—'A part of gray nervous matter which TRANSFORMS into a motor impulse a sensory impulse it has received.' Dunlison, 23rd Edition.

"Where they are 'united with one another,' giving to this system at least 62 independent brains.

THE ANASTOMOSES of nerves is referred to in Dunlison's Dictionary, 23rd Edition, p. 754. 'They extend from the nervous centers to every part of the body, COMMUNICATING WITH EACH OTHER; forming plexuses and occasionally ganglions.'"

(Pages 79-80, The Science of Chiropractic, Vol. II, 1917, by B. J. Palmer, D. C., Ph.C.)

A ganglion is a dividing area for dessication of continuity fibres between brain and body. Because fibres spread at this point, area is larger than original bundle lying parallel to each other.

This question of ANASTOMOSIS is another subject for investigation and question.

The circulation OF BLOOD is the anastomosis of this fluid.

No matter where a digital on mechanical pressure may be placed, or exist, it will immediately anastomose thru surrounding channels.

Study anatomy on this question; see illustrations they give.

To show the folly:

It is said that rheumatism is "caused by uric acid in the blood."

Suppose rheumatism IS LOCALIZED in right foot — no other place.

Same blood that is in right foot has made a complete circuit of BALANCE OF BODY in three minutes.

Same uric acid in right foot, is uric acid over ENTIRE BODY in three minutes.

Why haven't we rheumatism ALL OVER THE BODY, if uric acid was its cause?

If this theory were so, disease would be a floating condition, here one minute, some place else another.

To show logic of Chiropractic.

Nerves DO NOT anastomose.

Nerves are a direct CONTINUITY fibre from brain cell to tissue cell.

Produce pressure upon a nerve and that impulse flow CAN-NOT ANASTOMOSE thru surrounding nerves.

For this reason, pressure upon a nerve has a DIRECT LOCALIZING effect wherever that nerve ends.

Disease is STATIONARY. If it is in stomach, then it remains in stomach.

Because IT IS localized, and remains PERMANENTLY LOCALIZED, and is SPECIFIC in and to that area, is why you, as a Chiropractor, can adjust for it; because you are releasing pressures upon a SPECIFIC nerve going EXCLUSIVELY to that LOCALIZED area, and no other.

Disease IS specific. Cause IS specific. Correction IS specific. Cure IS specific.

Yet there exist "Chiropractic" schools that teach circulation of blood as the cause of disease.

There exist "Chiropractic" schools that teach anastomosis of nerves because anatomies do.

And those same schools give adjustment upon nerves which have direct continuity, and produce results which are IN DIRECT DENIAL of both those premises.

They educationally teach one thing and ignorantly practice its opposite.

Why? Because they want to conform to what everybody thinks, believes, and does, that they may be in style with prevailing fashions, regardless of whether they know right from wrong.

Please note that, while we make bold statements, we quote sources for those statements. That many Chiropractors disagree in these conclusions, is obvious. That other "Chiropractic" schools continue to teach the same old thread-bare beliefs, is also obvious. That they may hold us to public censure, is obvious. But note, in no way do they attempt to deny our statements because we quote our sources of authority.

"Gray's Anatomy, Fifteenth Edition, p. 798, says: 'The sympathetic Nervous System is (1) a series of ganglia, connected together by intervening cords, extending FROM the base of the skull TO the coccyx. one on each side of the middle line of the body, partly in front and partly ON EACH SIDE OF THE VERTEBRAL COLUMN.'"

(Page 80, The Science of Chiropractic, Vol. II,
1917, by B. J. Palmer, D.C., Ph.C.)

"The sympathetic nervous system presents A DISTINCT CONTRAST to the cranial and spinal nerve, as well as to the whole central nervous system, in that it included mainly the visceral and vascular nerves, and although it has manifold communications with the cerebrospinal system, it represents, TO A CERTAIN EXTENT, AN INDEPENDENT SYSTEM. It is composed of a number OF INDEPENDENT CENTERS which form a chain on either side of the vertebral column, the successive centers being united BY SHORT nerve cords. The structure so formed is known as the sympathetic trunk and the ganglia inserted in its course are the ganglia of the sympathetic trunk.

"The ganglia of the sympathetic trunk are connected with the neighboring cerebrospinal nerves by rami communicantes, through which the cerebrospinal nerves receive sympathetic fibres, and conversely, cerebrospinal fibres enter the sympathetic nervous system, there being thus A MUTUAL ANASTOMOSIS. The white rami fibres do not necessarily terminate in connection with the cells of the trunk ganglion with which they first come into connection, but may pass these AND TERMINATE IN A HIGHER OR LOWER GANGLION, OR EVEN IN ONE OF THE GANGLIA OF THE SYMPATHETIC PLEXUSES.

"From the ganglia of the sympathetic trunk THE BRANCHES of the sympathetic nervous system ARISES. They differ from those of the cerebrospinal system in many respects, being in the first place of a grayish-white color, not pure white like the latter, since they consist mainly of non medullated nerve fibres, and furthermore, they rarely have a straight course and they form long BRANCHES. Much oftener, almost without exception,

they form sympathetic plexuses which, especially in the region of the head, extend along the blood-vessels, and especially the arteries, cerebrospinal fibres having a part IN THE FORMATION of the plexuses, intended for the viscera of the thorax and abdomen. Imbedded in these sympathetic plexuses, especially the visceral ones, are numerous ganglia, some of which are very large and others microscopically small; they are known as ganglia of the sympathetic plexus and again GIVE RISE TO sympathetic fibres. Many small microscopic ganglia may also be found in the organs themselves (heart, eye, intestines).

"The sympathetic fibres, like those of the cerebrospinal system, are partly motor and partly sensory, and the system supplies practically the entire nonstriated musculature of the body.

"The sympathetic trunk is a paired structure RESTING UPON THE ANTERIOR (ventral) SURFACE OF THE VERTEBRAL COLUMN, almost parallel to the median plane. Each trunk consists of a number of ganglia arranged at rather regular intervals, and united into a chain by USUALLY SHORT CONNECTING CORDS."

(Pages 80-81, The Science of Chiropractic, Vol. II, 1917, by B. J. Palmer, D.C., Ph.C.)

"SPINAL LOCALIZATION IS NATURALLY FRAUGHT WITH GREAT DIFFICULTY, AND, LIKE CEREBRAL LOCALIZATION, requires a most exact knowledge of anatomy. MUCH HAS BEEN DETERMINED, MUCH IS INFERRED, BUT THERE IS ALSO MUCH TO BE ASCERTAINED. It has been said by one of the ablest of modern investigators (Mills) that the value of a study in spinal localization depends UPON THE EXACTNESS WITH WHICH PHENOMENA (cow, thistle, sparrow) are differentiated."

(Page 82, The Science of Chiropractic, Vol. II, 1917, by B. J. Palmer, D.C., Ph.C.)

"The following definition of 'Reflex Action' is from Dunglison's Dictionary, 22nd edition, page 953: 'Term Applied to an action which consists IN THE REFLECTION BY AN EFFERENT NERVE of an impression conveyed TO A NERVOUS CENTER BY AN AFFERENT NERVE. A REFLEX ACTION IS GENERALLY REGARDED TO BE ONE EXECUTED WITHOUT CONSCIOUSNESS.'"

"To make the above clearer, we refer to this author's definition of 'Reflection', page 953: 'Bending or turning backward of a ray of light.'"

(Page 101, The Science of Chiropractic, Vol. II, 1917, by B. J. Palmer, D.C., Ph.C.)

Medicine is MATERIA medica because it is based on MATTER.

Grant they MAY know EVERYTHING about organic structure of the body;

grant they may know MUCH about function of various structures of the body;

fact remains they know LITTLE IF ANYTHING about PHYSIOLOGY of structures of the body,

because they KNOW NOTHING about function of mental impulse flow thru nervous system from brain to body, flowing TO those structures of the body.

We quoted one text that flatly DENIES existence of any "special or vital energy."

"The following is quoted from Osteopathic Health, Volume II, No. 2, page 19: 'Stretched along both sides of the spine, within the cavity of the chest and abdomen, running the entire length of this "backbone", are the gangliated cords of the sympathetic nervous system. This wonderful AUTOMATIC (an automaton "without consciousness") system, with its central power house AT THE SOLAR PLEXUS, or ABDOMINAL BRAIN, furnishes energy for ALL the INVOLUNTARY activity of the body — the machinery that runs as well while we sleep as during wakeful activity. All the bodily organs, but not the voluntary muscular system, are sustained, operated, controlled, regulated BY THIS SYMPATHETIC SYSTEM. ITS IMPORTANCE TO LIFE IS OBVIOUS.'"

(Page 101, The Science of Chiropractic, Vol. II, 1917, by B. J. Palmer, D.C., Ph.C.)

Medical men constantly refer to "voluntary" and "INVOLUNTARY" muscles, etc.

They CAN understand that education IS "voluntary." They cannot understand how something WHICH DOESN'T EXIST COULD BE "voluntary"; therefore, actions which occur, which they cannot explain, are "INVOLUNTARY."

There is a VOLUNTARY educated action. There is a VOLUNTARY Innate action. Each IS VOLUNTARY, each to itself.

As medical men refer to the "conscious" mind and "SUBconscious" mind, there is a "conscious" mind (Educated) and a "SUPERconscious" mind (Innate).

In 1905 we first criticized SYMPATHETIC nervous system. We have been frequently misquoted on that criticism.

It has been said we said there was no sympathetic NERVOUS SYSTEM. That is exactly what we said, and that isn't what we said at all. We said there could be no such thing as a SYMPATHETIC nervous system. We affirm existence of a nervous system. We deny THIS "nervous system" is governed in its physiological function by "sympathy." It depends entirely upon how

that sentence is emphasized as to whether we are correctly or incorrectly quoted: We said "there could be no such thing as a SYMPATHETIC nervous system"; or "there could be no such thing as a sympathetic NERVOUS SYSTEM." We deny "sympathy" and affirm "nervous system."

It was in 1906 — 44 years ago — we published our first articles on this subject.

What reasons had we for questioning that which all anatomists and physiologists believed and taught?

1st. THEY had no reasons for believing it.

2nd. THEY admitted it was UNWORKABLE as they presented it — which we have just quoted.

3rd. It wasn't common sense because man didn't work that way.

The average lay person — if he gives it thot — and run of medical students — are of the opinion that anatomy is fully known and is a completed subject. They are taught from books, by teachers who studied those books, and they accept all they are taught. Being a MATERIAL subject, why should there be ANY doubt about what you see and feel? Anatomy, like some other phases of medical studies, contains many unknown enigmas. Each time a new anatomy is printed, it contains many revisions of former opinions, such as the changing of "Sympathetic Nervous System" of a few years ago to the now called "Autonomic Nervous System."

Two great and very important fields in which practically little is known medically, even today, are neurology and serology. Admission which we have quoted from their standard authorities. In the field of function, nothing certain or logical is known about physiology because of their denial or admission of a truthful understanding of the Innate Intelligence abstract which flows thru neurology — an admission we have also quoted.

As further proof of the foregoing statements, we quote the following from New Orleans States newspaper, May 26, 1947:

"LSU PROFESSOR IS PICKED TO REVISE GRAY'S ANATOMY.

"By Vernon Louviere

"One of the outstanding books in the field of medicine — 'Gray's Anatomy' — is being revised by a Louisiana State University medical school professor. He is Dr. Charles Mayo Goss, who was appointed professor of anatomy at the school last February.

"'Gray's Anatomy,' the best known of all medical works, and Bible of practically every medical student in the world, was written by a young English surgeon before he reached the age of 30. Death came at 34 to Dr. Henry Gray before he could realize the extent of his contribution to the world of medicine. Since the book was first published in 1858 it has been revised 24 times.

"FOREMOST AUTHORITY TODAY

"In selecting Dr. Goss for the 25th revision, the publishing firm of Lea and Febiger in Philadelphia is said to have chosen one of the foremost authorities on the study of the human body. Revision of the classic work will require almost a year. Dr. Goss will incorporate in the new printing all of the findings and developments in recent anatomical research that have occurred since Gray's was last published.

"'Much of the new information I am preparing for the revision comes from my teaching experience,' said the professor, 'but I will depend heavily on my friends whom I have asked for suggestions on correction or addition of material.'

"CHEST SURGERY STRESSED

"Chest surgery which has been studied extensively in recent years and which has never been thoroughly covered in books on anatomy will receive considerable attention in the revised text.

"Great strides in the experimental study of the nervous system have been made during the past few years and Dr. Goss will attempt to clarify the relationship of these findings.

"The study of muscles, their anatomy and function, will be brought up to date in Dr. Goss' revised work.

"A prominent feature of the new edition will be some 25 illustrations by William Branks Stewart, head of the department of medical illustration. These illustrations will depict some of the new scientific findings reported by Dr. Goss.

"NATIVE OF ILLINOIS

"Before his appointment to the LSU medical staff, Dr. Goss was professor of anatomy at the Medical College of Alabama, University of Alabama. The 48-year-old anatomy instructor is a native of Illinois and was graduated from the Yale University medical school."

What DID seem to be the way man works?

He puts his finger on a hot iron.

Finger is jerked away.

What went on?

And why?

First, an impression of heat was picked up by afferent nerve flow in finger.

Where did it go?

To brain, where mind interpreted it to be of burning heat and dangerous to welfare of tissue structure.

As a result, CONSTRUCTIVE Intelligent Understanding desired to save those structures FROM being burned.

Hence a responsive adaptative efferent impulse flow was sent down to jerk finger away, to save tissues.

ALL re-actions WERE for a CONSTRUCTIVE purpose — hence intellectual.

This portrayed DIRECT connection between finger and brain; brain and finger.

That which went IN was DIFFERENT than that which came BACK.

We could not conceive that man — one of the natural products of a Wisdom greater than any other known, ran as a perfect spiritual, mechanical and chemical being as he was — was being run by a disorganized series of 129 generals, each independent from each other, each governing and directing a part, each apart from each other, each trying to be the sole governing power of an isolated section. Man was a totality unit, none of his parts being isolated from each other. He is one being directed, governed and functioning from a single intellectual source, all parts united to one common harmonious whole. This might not be medically scientific, but it was common sense.

As a result, we proposed THE THEORY of

A direct brain cell to tissue cell efferent continuity

A direct tissue cell to brain cell afferent continuity

A direct circuit continuity from brain cell to tissue cell; tissue cell to brain cell

Thru which flowed a direct circuit continuity of nerve force or mental energy.

This was in conformity with the Chiropractic principle and practice.

It was upon THIS principle and practice CHIROPRACTIC secured results.

Break continuity of matter OR energy, and you have death, paralysis, or dis-ease.

Restore continuity of matter OR energy, and you have life and health.

Upon this basis CHIROPRACTIC rises or falls, lives or dies.

At this juncture, it is interesting to note that our profession split into two camps.

1st. Those who were opportunists, who believed what others believed, taught what others taught, and agreed with standard and accepted books on anatomy.

These people, in those Chiropractic schools, advertised they taught from standard and accepted anatomical authorities — and they drew towards themselves the type of student that wanted to know what others believed and taught.

These people believed and taught ONE thing, and practiced the Chiropractic principle WHICH DENIED IT.

2nd. Those who sought truth, facts, data, information, evidence; who had little regard for tradition if it was wrong; who were not afraid to think, teach and practice something foreign to what others believed and had printed.

It was in 1905 — 46 years ago, we came forth with our THEORY of direct brain cell to tissue cell fibre continuity. That THEORY of existence of vertebrata was so reasonable, so consistently sound, that it took root in the mind of men. It became the foundation upon which the Chiropractic premise rested. It became the basis upon which the Chiropractic practice thrived and multiplied. We were growing so rapidly that we were a menace to medicine. This THEORY either had to be accepted as a THEORY or DENIED as a scientific fact.

Dr. Crile, one of their foremost and radically different medical researchers, in his labs in Cleveland, took up the challenge to prove it was untrue and could be so proved by science.

In 1926 — 21 years after we advocated the NEW THEORY of direct brain cell to tissue cell nerve fibre continuity, Dr. Crile issued a book titled A BIPOLAR THEORY OF LIVING PROCESSES. Being a researcher and a scientist, he found exactly WHAT he found. He did not find one thing and report its opposite. He found there WAS a direct brain cell to tissue cell nerve fibre continuity. As a result, all anatomies since changed their premise of knowledge of neurology of the nervous system.

In this book, Dr. Crile sets forth following BIPOLAR THEORY:

- a. Man is a two-pole electric potential animal
- b. The brain is one pole, the body the other
- c. The two are connected by a direct continuity nerve fibre system
- d. When the two are continuously connected, and thru them flows a continuous flow of electric potential, man is well in all his parts.
- e. If man is sick, it is because there was a break-down between continuous flow of electric potential between the two poles between brain and body
- f. when this continuity quality flow of electric potential is re-established between brain and body, thru a continuity of nerve fibre, man can and will get well.
- g. The CAUSE of all disease is because of this breakdown because of interference to flow between one and the other.

Being the scientist he was, Dr. Crile was not contented to let the matter rest upon this THEORY. He then searched for and found location of interfering medium that caused this break-down that caused all disease. Where do you suppose he found it? The only place it could be. Where was that? Exactly where IT WAS!

Having found it, having written about it in his book, having now presented his research to the world, WHY didn't he proceed to correct it?

You must remember Dr. Crile was now an old man. He was the head of a very large, well-established hospital. He had an international reputation as a surgeon and practitioner. To enter the field of a practitioner on the new basis involved a complete change of his life's work of thinking and practicing; a revolution of his hospital; an evolution of the practice of medicine; something which HE at his age did not have the courage to face or attempt to establish.

At any rate, OUR THEORY of 1905 was established as a matter of scientific research.

We received advance sheets of his new forthcoming book. We

sent notice to our profession to secure copies at once. They did. The first edition was sold immediately. We did this because his book was almost a complete substantiation of the Chiropractic principle and practice. We believed then, and have since been disillusioned, that if a MEDICAL man of renown and reputation WERE TO ENDORSE THE CHIROPRACTIC PRINCIPLE AND PRACTICE, then Chiropractors would believe it. We realized that if a CHIROPRACTOR were to endorse and support a new evolutionary theory, medical men would deny it; but we did believe Chiropractors would support it. Our realizations were futile. We realized, after all, that here was a well-known medical man supporting Chiropractic, while Chiropractors were supporting medicine. You tell us why — we can't.

Then came Speransky. A BASIS FOR THE THEORY OF MEDICINE.

He again voiced convictions of Crile.

Then came Morat with his PHYSIOLOGY OF THE NERVOUS SYSTEM.

As a result, to date, of this thinking, reasoning, and researching upon the part of four people, modern and progressive anatomists are neurologically and physiologically changing their physical science of anatomy from a strictly materialistic study to one of straddling the fence; now calling it the AUTONOMIC NERVOUS SYSTEM, leading us to infer it is a more or less AUTOMATIC system and takes care of itself. We say "straddling the fence" because they admit the physical, and half-way admit the immaterial.

When they go all the way, they will admit the Chiropractic premise, after which they will, of necessity, be compelled to establish a philosophy for their conclusions.

It is quite obvious that what we have said has TWO morals:

1st. That advancement in research comes from finding imponderables; things that are impossible; and finding the sound and correct solution for them.

2nd. That there are two kinds of people who deal with imponderables — things that are impossible, viz., those that accept them as they are and live with them; and those who seek correct solution for them.

For the moment, let us discuss the latter:

The vast majority are contented; satisfied. They cater to present whims of what the present group-mind want. This group will fight to retain a tenacious hold on present outlooks, services and deliveries. Medical men fight to keep medicine alive, even tho they admit its failure to get sick people well; even tho they admit their teachings fallacious and impossible. To this medical group, there is a large Chiropractic group-mind who sooner or later find their patients have been educated to medicine, insist upon having treatments, pills, enemas, baths, massage, having their bellies tickled and their backs rubbed; and too frequently, rather than educate them otherwise, they give the sick what they want as they want it, when they want it. This group is satisfied to make a living, by fair means or foul. So, too, do practically all so-called Chiropractic schools teach what they find people believe in — such as germs cause tuberculosis; give insulin for diabetes; punch all up and down the back; etc. They teach medical anatomy, medical physiology, medical treatments. About the ONLY issue some of this group clings to **THAT IS CHIROPRACTIC**, is a ghost-like remnant of its philosophy. Why? Because it is a better **SELLING** argument and by so doing draws **IN** more patients than any other.

We know one "Chiropractic" college which teaches **NO** philosophy. Ask their graduates why they "treat" the back-bone, and they look starry-eyed to think that **YOU** would ask such a question. Press the question and they stammer and possibly say "because it stimulates the blood and nerves." To such there is always a reaction when they are sold Chiropractic and delivered medicine. This group are opportunists, having little courage of any conviction.

The small minority realize imponderables and when taught correct and sound solution of those problems set forth like disciples of a new gospel, to go on the high-ways and by-ways and preach and practice the better way. They refuse to cater to present whims of what the present-day group mind wants. This group, even tho small, strenuously labor to develop future outlooks, services and deliveries. This group of Chiropractors develop, defend, preserve and educate people of today **OUT OF** medicine into the **NEW** philosophy, science and art of Chiropractic of tomorrow.

This small group includes all great names of history — men who have MADE history. Such names as Watts, Newton, Fulton, Stephenson, Holland, Wright Brothers, Westinghouse, Marconi, Teslas, Franklin, Edison, Ford, D. D. Palmer, ad infinitum. Each of these, in his day and in his way, brot forth NEW ideas, NEW services; thinking ahead of their fellowmen. They took imponderables and developed BETTER ways to do everyday common things. What would be reaction of these men if they could return to earth today and see multitudinous ways in which their scoffed-at ideas have been used? Suppose any or all HAD refused to battle human storms of protests against their ideas? Suppose THEY had lain down, become opportunists, and refused to go on? Would you or we be having their comforts today?

Sooner or later, each of us is called upon to face this battle within ourselves and answer which of these roads we travel. Shall we become a follower of the satisfied group? Shall we be a battler for a future service which the vast group ridicule? We faced that issue when a boy of 16. We found ourself! We have never hesitated from that day to this, to work for the future. Will you? Only YOU can answer THAT question.

“ANIMAL ELECTRICITY

“A phenomenon that did much to awaken our early investigations of electricity is still of great interest to biologists.

“By H. B. Steinbach

“IF YOU WERE TO COLLECT TWO DOZEN FROGS AND CONNECT THEM IN SERIES, RUNNING A WIRE FROM THE INSIDE OF THE SKIN OF EACH TO THE OUTSIDE OF THE SKIN OF THE NEXT, YOU COULD MEASURE BETWEEN THE ENDS OF THE AMPHIBIAN CHAIN A VOLTAGE EQUAL TO THAT OF A FLASHLIGHT BATTERY.

“In 1792 experiments with frogs started a vigorous scientific controversy. Out of the controversy came the electric battery, which made possible the control and study of electricity and our present ability to harness its subtle power. In a way, frogs started it all. The controversy of 1792 was deceptively simple. WAS THE ELECTRICITY THAT MADE A FROG’S LEG TWITCH PRODUCED BY THE FROG or by metals connecting the parts of the frog? “Luigi Galvani was professor of anatomy at the University of Bologna and the proud possessor of an electrical machine, a device of the day for producing discharges of static electricity by rubbing glass or other substances with suitable materials. It was perhaps natural that a biologist’s laboratory should be equipped with an electrical machine; throughout most of the 18th

century THE CURIOUS PHENOMENON OF ELECTRICITY HAD BEEN THOUGHT TO HAVE SOMETHING TO DO WITH LIFE. The static machine was just about the only reliable source of electricity in Galvani's time, and it could develop only brief discharges.

"Before Galvani began his experiments with animal electricity he spent much time studying the reactions of freshly prepared animal tissues. His principal subjects WERE THE NERVES and muscles of the frog's hind legs — a preparation now familiar to college biology students. The animal was killed and eviscerated, and the upper half of its body was removed so that its legs dangled from a segment of spinal column. WHEN THE NERVES OF THE LEGS WERE PINCHED OR OTHERWISE IRRITATED, THE MUSCLES CONTRACTED. Galvani reported many of these observations in 1777, and it was apparently at about this time that electrical phenomena first engaged his attention.

"GALVANI'S NOTES RECORD THAT FRESHLY PREPARED FROGS' LEGS WERE SEEN TO CONTRACT WHEN THE ELECTRICAL MACHINE SPARKED. Further observations showed that the contractions did not occur every time the machine sparked, but only when the metal scalpel used for dissection WAS TOUCHING A NERVE. ELECTRICITY FED INTO THE NERVE BY THE METAL WAS VITALIZING THE FROGS' LEGS, an observation that fitted in perfectly with THE IDEA THAT ELECTRICITY WAS CLOSELY RELATED TO LIFE.

"It was during this period that Galvani made an observation which led him to announce that not only the electrical machine and the storm cloud BUT ALSO LIVING MATTER PRODUCED ELECTRICITY. His 'usual manner' of preparing frogs' legs was to fasten a copper hook IN THE SEVERED SPINAL COLUMN and suspend the whole preparation on an iron stand. He noted that when a frog's moist feet touched the base of the stand, the legs contracted. The reaction was in every way similar to that observed on the application of electricity, yet only the frog's legs and the stand were present. Galvani soon concluded that THE LIVING SUBSTANCE PRODUCED ITS OWN ELECTRICITY. So startling and so revolutionary was his conclusion that he did not publish his monograph "De Viribus Electricitatis in Motu Musculari" until 1791.

"The loop of wire and a frog muscle were mounted inside the tube in such a way THAT THE NERVE ATTACHED TO THE MUSCLE hung down through the loop and touched its inner surface. When the copper rod was passed up through the loop TO TOUCH THE NERVE, THE MUSCLE CONTRACTED.

"Galvani explained his results by saying that the frog preparation was the source of two different electricities, positive and negative, and that contrac-

tion WAS THE RESULT OF CONNECTING TWO PARTS, NERVE AND MUSCLE, through an arc of two metals.

"Finally a student performed an experiment that Galvani thought settled the question. When the muscle was abraded slightly, IT COULD BE MADE TO CONTRACT BY TOUCHING THE NERVE TO THE INJURY WITHOUT ANY ARTIFICIAL ARC AT ALL.

"So far as the original experiments were concerned, however, both Galvani and Volta were partly right. Electrical forces do arise at the junctions of unlike metals, AND LIVING CELLS DO PRODUCE ELECTRICITY. THE PRODUCTION OF ELECTRICITY BY LIVING THINGS WAS INDEPENDENTLY ESTABLISHED at about the same time as Galvani's frog experiments.

"Faraday and others had already shown that THE DISCHARGE OF THE ELECTRIC EEL COULD CAUSE PHYSIOLOGICAL EFFECTS SUCH AS THE STIMULATION OF FROGS' LEGS.

"Faraday also considered THE IMMUNITY OF THE FISH TO ITS OWN SHOCKS, and investigated the distribution of the shock in the surrounding water.

"In all the electrical experiments of the period the frog remained important, not as a source of electricity but as a detector. THE MUSCLE-NERVE PREPARATIONS WERE MORE SENSITIVE THAN THE BEST ELECTROSCOPES, which were more sensitive than the best galvanometers.

"BUT WHAT OF THE MECHANISM BY WHICH LIVING CELLS GENERATE ELECTRICITY? Many able men since Galvani have labored to explain it, AND THEY HAVE PRODUCED LITTLE MORE THAN A SERIES OF DESCRIPTIONS OF ELECTRICAL BEHAVIOR. This is not due to lack of effort or brains on the part of the workers. The ubiquity of electrical potential differences in LIVING THINGS has a formal explanation in the basic fact that protoplasm differs in salt composition from the fluids of its environment. The 19th century German physiologist E. H. DuBois-Reymond, one who WORKED LONG AND WELL IN THE ATTEMPT TO EXPLAIN ANIMAL ELECTRICITY, came to the conclusion that it must originate in the arrangement of electrically charged units at the boundary between protoplasm and environment. Later the term ion was substituted for charged unit, but the basic idea remained the same. THE CORRELATION BETWEEN THE ORIENTATION OF CHARGED UNITS AND THE ABILITY OF CELLS TO GENERATE ELECTRICITY CANNOT BE DOUBTED; IF A CELL WERE ELECTRICALLY NEUTRAL THERE WOULD BE SOMETHING WRONG WITH IT.

"THE REASON FOR OUR IGNORANCE OF HOW LIVING THINGS PRODUCE ELECTRICITY PROBABLY RESIDES IN THE FACT THAT

ELECTRICAL POTENTIAL DIFFERENCES MERELY REFLECT THAT THE CELL IS LIVING. Every living cell has a discrete boundary which separates its protoplasm from materials that are quantitatively different. Since protoplasm is an electrolytic system, this necessarily means differences in electrical potential. ANIMAL ELECTRICITY WILL BE EXPLAINED WHEN LIFE IS EXPLAINED, WHICH MAY NOT BE FOR SOME TIME. "The lack of a fundamental explanation, however, does not detract from the need for further investigations. NOR DOES IT DEPRECIATE THE PRACTICAL VALUE OF MEASUREMENTS OF ANIMAL ELECTRICITY. THE PHENOMENON FINDS USEFUL APPLICATIONS IN THE ELECTROCARDIOGRAPH AND THE ELECTROENCEPHALOGRAPH, POWERFUL TOOLS IN MEDICINE AND RESEARCH. MANY PHENOMENA OF ANIMAL ELECTRICITY OTHER THAN THOSE OF HEART AND BRAIN CAN ALSO BE MEASURED. We may expect progress along the lines first plotted by Joseph Erlanger of Washington University and Herbert Gasser of the Rockefeller Institute, who applied the cathode-ray tube TO THE STUDY OF THE ELECTRICAL VARIATIONS ACCOMPANYING THE NERVE IMPULSE.

"The first studies of animal electricity should be remembered in these days of specialized investigation. A list of those working on the problem from 1700 to 1900 would be a list of outstanding biologists, mathematicians, chemists, physiologists and philosophers. Ideas flowed freely; conclusions were defended stoutly and in public. Men tended to be scientists and philosophers and not members of departments of zoology or physics. The scientific papers of the past 50 years are in the main only understood by specialists. FORTUNATELY BIOLOGY SHOWS SIGNS OF AGAIN BECOMING A COMMON GROUND FOR ALL KINDS OF SCHOLARS. Physicists have begun to write more books about BIOLOGICAL PHENOMENA and biologists appear in programs of physical and chemical societies. THE SPECIALIZED LANGUAGE OF EACH CULT IS A HINDRANCE; so is the departmental habit of our universities."

(Scientific American, February, 1950.

(H. B. Steinbach, Professor of Zoology
at University of Minnesota.)

COMMENTS

Thruout quoted article this investigator introduces distinction between frogs' leg muscles and "living things," "living cells" "in living things"; "The reason for OUR IGNORANCE OF HOW LIVING THINGS PRODUCE ELECTRICITY . . . MERELY REFLECTS THAT THE CELL IS LIVING"; "Animal electricity will be explained WHEN LIFE IS EXPLAINED, which may not be for some time", etc.

Animal "electricity" has long been known. Electricity is energy, power, force capable of setting matter into motion. "ANIMAL electricity" is a misnomer but, for want of a better name, it has been so called by physicists, physiologists, and biologists. Failure to recognize, refusal to admit, affirming denial, not admitting and denying the unknown factor of spirit, soul, ego, personality, Innate Intelligence WHICH IS INTELLIGENT energy, power, force, they place "animal electricity" and "electricity" on a physical par to equal the other. Failure to recognize, refusal to admit, affirming denial, not admitting intellectual abstract factor does not rule it out of being a fact.

Innate Intelligence is controlling factor of human mental impulse or guiding nerve force supply. It is intelligence, judgment, discrimination, adaptative, changing factor from one kind of crude activity or movement of intelligent direction of matter. IT and IT ALONE adapts hot to cool, cool to hot, right from wrong, consciousness, good from bad, memory, thinking, ideas and ideals, constructive from destructive activities, life-giving from death-taking, differing qualities between living, dying, and dead matter. It is this INTELLIGENCE which has been *and still* is overlooked as the GREAT factor in difference between "phenomena" of stimulated muscular contraction in a *dead* frog's legs by an electrical "stimulus" AND the rhythmic coordinated movements of one living muscle in tune with another or all of them combined in the entire body of *any living* composite organized body, coordinated with their comparative contractions and relaxations in all total musculature, organs, viscera, internal and external, which makes it a breathing, digestive, secretive, excretive, eliminative, reproductive, thinking instrument, directed, controlled, and governed by an intellectual power greater than a dead frog muscle by itself.

FURTHER STUDIES OF ENERGY

In previous pages ("The Mooted Energy Question") we quoted two "authorities." One denies "any specific vital energy"; other affirms it.

In chapter under "The Sympathetic Nervous System" and "Reflex Action", we mentioned Crile, Speransky, Morat. To this we add Alexis Carrell. We shall quote sections, insofar as such have a direct bearing upon the purpose of RESEARCHING THE

UNKNOWN MAN, pointing the way to proof of the Chiropractic principle in its application to proving there is an energy and that it does have a direct bearing upon cause of dis-ease and its correction.

There are THREE break-down analytical phases of this problem of LIVING MATTER:

1. MATTER.
2. ENERGY which moves matter.
3. INTELLIGENCE that directs motion of energy that moves matter.

Kirke denies the existence of human energy.

Crile presents the "theory" of existence of "electrical potential."

Chiropractic goes ONE STEP FURTHER, viz., admits existence of matter, energy, and of INTELLIGENCE.

Watch the struggling of the minds as they present evidence; how, once in a while, Crile gets up to the very edge then backs down — backs away from making the third step.

We insert a glossary of terms used by some of these authors, to assist the reader in knowing meanings of certain infrequently used terms.

"AUTHORITY" — WHO IS CRILE?

Each profession has "authorities," pro and con. Authorities are those who rank high in the estimation of their members, even tho they disagree vitally on opposite issues. An "authority" is one who has had long experience and opportunity to research with logic, reason and factual data and evidence; who pieces it together and, because thereof, presents it to his colleagues to gain their respect and admiration for original work.

It is our purpose to quote MEDICAL "authorities" only as such quotations prove they are breaking away from old medical concepts and are breaking into a new concept which is closely allied to the Chiropractic principle. Such an authority is "Crile." However, the value of HIS opinions depends upon his standing in his profession.

We quote from TIME (August 30, 1926):

"The more alert of the Cleveland citizenry know that Dr. George Washington Crile is one of the great men of surgery. They know that his method of blocking nerves to prevent the shock of operations (anoci-association) is

as great a landmark in medicine as the first application of anesthetics; that he has improved the method of transfusing blood; that he is a world authority on goiter; that at his Cleveland Clinic they may get a physical examination of scholarly exactitude. Very few know that he and his associates have performed 2,670 experiments on animals, including man, and made countless observations while ever searching for some explanation of what life really is. They have decided that life is an electric phenomenon."

"Such facts pertinent to a conception of life as an electrical phenomenon, Dr. Crile, with the editorial aid of his laboratory co-worker, Amy F. W. Rowland, has collated in his book, 'A Bi-polar Theory of Living Processes,' just issued by MacMillan's. His thesis is far from dogmatic. 'We concede that our thesis has not been finally proven. Final proof is lacking regarding practically every point. We concede that the bipolar theory would fair to explain living processes if any other form of energy than electric energy could be proved to be adapted to construct and operate an organism which is identical with or analogous to that of the human organism.'

"The metaphysical and the religious thoughts which this electric conception of life arouses, Dr. Crile leaves to others."

"'We do not know what life is, but we do know that life is certainly a physical property, a behavior of a colloidal miscella (grain) of a particular constitution.'"

BIPOLAR — (bi-po'lar) Having two poles; as a bi-polar dynamo; in anatomy, said esp. of cells running out into a process at each end.

DIELECTRIC — (di'e-lek'trik) Pertaining to, or possessing the property of transmitting electric force by a process different from conduction, as in the phenomena of induction; nonconducting. A dielectric substance; an insulator.

NUCLEUS — (nu'kle-us) A kernel, nut. Kernel, as of a nut or seed. A central mass, part, or point about which matter is gathered or concentrated, or to which accretion is made; the central or focal portion; kernel; point of concentration; focus; core. A mass of gray matter, or group of nerve cells in central nervous system, esp. in the brain.

CYTOPLASM — (si'to-plas'm) The watery ground substance of the protoplasm as opposed to the granular contents; later, the entire protoplasm; now, the protoplasm of the cell exclusive of the nucleus.

ELECTROLYTE — (e-lek'tro-lit) A compound decomposable, or subjected to decomposition, by an electric current. Electrolytes in solution, esp. aqueous solution, conduct the current. According to the electrolytic theory this is explained by their dissociation into ions. Salts as a rule dissociate in various degrees; other substances do not conduct the current and are called non-electrolytes.

SYNCYTIAL — (sin-sit'i-al) Relating to a syncytium; formed of a multinucleated protoplasmic mass without apparent division into cells.

SYNAPSE, SYNAPSIS — (sin-aps', sin-ap'sis) The gathering of the chromatin into a tangled skein at one side of the nucleus during the prophase of heterotypical division of the nucleus of a sex-cell, forming the union

of chromosomes in pairs, thereby effecting the reduction of chromosomes. The close approximation of, or contact between, the processes of different neurons.

HYPERCHROMATISM — (hi'per-kro'ma-tiz-m) Excessive pigmentation. Unusual intensity of color.

MITOTIC — (mi-to'tik) Relating to or marked by mitosis.

MITOSIS — (mi-to'sis) Caryocinesis, indirect nuclear division, the usual process of cell-reproduction. Gametogenetic — the process of cell division characteristic of the ovum after union with the spermatozoon, in which the number of chromosomes in each of the conjugating cells is reduced by one-half in order to preserve in the impregnated ovum the number proper to the species; were it not for this reduction of the chromosomes in these conjugating cells the number of chromosomes in the zygote would be thirty-two instead of sixteen.

LABILE — (lab'il) Unsteady, not fixed; noting certain constituents of serum which are readily destroyed by keeping, by subjecting to slight degrees of heat, etc., and (2) an electrode which is kept moving over the surface during the passage of an electric current. Elements, tissue cells, as of epithelium, connective tissue, etc., which continue to multiply by mitosis during the life of the individual.

CATALYTIC — (cat-a-lit'ic) Relating to the catalysis.

CATALYSIS — (ca-tal'i-sis) Chemical decomposition induced by the presence of a body which either takes no part in the reaction or is restored to its original state at the end of the process.

LIPIN — (li'pin) A comprehensive term including lipoids, soaps, neutral fats, and fatty acids.

IMMISCIBILITY — (i-mis'i-bil'ity) Immiscible — incapable of mixing, as oil and water, for example.

SYNCYTIUM — (sin-sish'i-um) A multinucleated protoplasmic mass, seemingly an aggregation of several cells, but without any perceptible cell-outlines. (2) A nucleated protoplasmic membrane, without cell-outlines, lining the blood lacunae of the placenta; placental plasmodium.

In quoting authors, we shall name book, year of publication, publisher, under each quotation shall give page where such can be found. The reader may then go to that book, verify the quotation is justifiably quoted in relation to this subject.

"A BIPOLAR THEORY OF LIVING PROCESSES."

By George W. Crile. Edited by Amy F. Rowland. Published by MacMillan Company, New York, 1926.

"When I was a student in medical school I came for the first time in contact with the dramatic picture of *failing bodily energies* and death. The patient was young and strong; every organ of his body was sound; he had lost but little blood although both legs had been crushed by a locomotive.

As I watched him slowly sink into death, the mental and physical prostration, the shrunken, pallid face, the cold sweating skin, the fading pulse, fixed the picture in my mind. Autopsy revealed *no lesion in any vital organ*. Immediately I planned a research for the purpose of attempting to find *what essential mechanism had failed*. As I had watched the pulse fading so inevitably, I thought that death was due to the want of circulation as the result of heart failure; BUT WHAT HAD CAUSED THE HEART TO FAIL? It was not hemorrhage, but it appeared to me that failure of the circulation, to whatever IT was due, must have been the primary cause of death, and this belief directed the course of my initial studies.

"After futile experiments in an improvised laboratory in Cleveland, I was fortunate enough to secure an opportunity in 1895 to pursue this research in the University College of London under the direction of Sir Victor Horsley. Since that time this study has proceeded without interruption in London, in Cleveland, in war hospitals in France, at the Western Reserve University Medical School, at Lakeside Hospital and in the Research Laboratories of the Cleveland Clinic Foundation. During this long search for the *underlying causes of fatigue, exhaustion and death*, data were accumulated which made it apparent that to understand the nature of exhaustion and death, it was necessary first to understand *the nature of life itself*. The research therefore turned from a study of the nature of death to a study of *the nature of life*. In the progress of these studies there have been four principal stages:"

Pages 3-4.

"According to this conception the cells of the organism *would be electric cells* in which the comparatively acid nucleus *would be the positive pole* and the comparatively alkaline cytoplasm *the negative pole*. At this point, therefore, we began to consider the organism as a bipolar mechanism and to direct our researches into the field of biophysics."

Page 6.

"It remained to discover how this vital potential is maintained, and we assumed that the potential was due to oxidation and that in turn *the electric potential within the cell* was the physical catalyst that governed oxidation. This assumption led us TO ABANDON PHYSIOLOGICAL, CHEMICAL, AND MICROSCOPICAL METHODS OF ATTACK upon our problem and to turn to physics in the hope that by the application of physical methods we might identify the physical laws in accordance with which the organism is operated. Accordingly, in 1917, in collaboration with G. B. Obear, Amy F. Rowland, and Helen Hosmer, a series of researches was initiated which led to the establishment of a permanent biophysical laboratory in which *the bipolar theory* has been subjected to biophysical tests."

Page 7.

"If the organism *is operated by electricity*, one would expect that the cells would be adapted for the accumulation of electric charges. That this is the case has in turn been shown in our biophysical laboratory by Hugo Fricke."

Page 7.

"Following the lead suggested by these findings the organism has been studied AS A WHOLE to secure evidence as to the existence of a part of

highest and a part of lowest potential, and of electric currents adapted to the vital processes of the organism.

"Finally, our findings from our initial study to the present have been scrutinized and correlated for the establishment of a premise which would bridge the gap between the living and the non-living and suggest a physical line of ascent from the atom to man."

Pages 7-8.

"Any theory of the nature of life must account not only for the common fundamental phenomena of life in all forms of living beings from the simplest to the most complex, but it also must identify the fundamental form of energy to which the reactions of life can ultimately be traced. It must identify a uniform pattern or plan for the transformation and utilization of energy. It must account for the necessity for such ever-present characteristics as the acid-alkali balance, the lipoid films, the omnipresent electrolytes. It must show why a continuous supply of oxygen and continuous oxidation are necessary. It must show the mechanism of stimulation and of specific response to stimulation. It must account not only for reproduction but also for the transmission of acquired characteristics. It must identify the operation of the unicellular and of the multicellular organism with the operation of protoplasm itself. It must show the mechanism of the creation of living matter — protoplasm — from the energy and matter of the environment.

"It is obviously BEYOND THE PRESENT SCOPE of human knowledge to meet all these requirements. It is feasible, however, to present a theory which appears at least to point to a reasonable explanation of the essential characteristics of living organisms and of the phenomena of life itself.

"Mathews has stated that the difference between the living and the lifeless is a difference in the energy content of the molecules. The difference between the reactive molecules of protoplasm and the same unreactive molecules outside of protoplasm is a difference in energy content. The various chemical and physical powers of protoplasm which so strikingly differentiate it from the lifeless are due to the increase in the energy content of the molecules. Living matter contains molecules having a high content of energy and capable of passing to a more stable dead form in which they contain less energy."

"The central fact regarding living organisms then is that they are transformers of energy and that they must be operated by means of one or more of the following six forms of energy: heat, gravitation, intermolecular forces, chemical energy, electric energy.

"It is obvious that the organism of a rabbit, for example, is not operated by heat energy; nor by light energy; nor by gravitational forces; nor by surface energy. It follows that the probable driving force of living organisms must be either electrical or chemical energy, or a combination of both. We therefore propose the theory that living organisms are bipolar electric mechanisms. If this theory is tenable it must meet the following requirements:

"1. That electricity is a constant phenomenon of living processes. This has long been known.

"2. That the application of electricity to the muscles or glands, or to their

nerve supply will cause them to perform their natural functions. This is a basic fact which is universally accepted by physiologists.

"3. That the materials of which animals are constructed *are specifically adapted to electrical processes.* Certain generally known facts regarding the principal constituents of the body will be cited and new evidence submitted.

"4. That in structure and function the unit cells which drive the organism *not only are adapted to fabricate, to store and to discharge electricity,* but that this is true also of the protoplasm itself. Certain generally accepted facts and certain new evidence which tend to establish this requirement will be cited.

"5. That the organism as a whole *is a bipolar electric mechanism* bearing the pattern of the unit cells and that the unit cells are constructed on the pattern of the atom. Experimental data which tend to support this requirement will be offered.

"6. That *the normal and the pathological phenomena of man and animals can be interpreted in electrical terms.* Summaries of experimental researches undertaken to establish this point will be given." Pages 11-12.

"We may consider then that *electricity keeps the 'flame of life' burning in the cell; and that the flame (oxidation) supplies the electricity which is the 'vital force' of the animal.* In accordance with this conception, therefore, the cell *is an automatic mechanism; life as we view it is the expression of the activity of this automatic mechanism.*" Page 15.

"If our conception is true, then among the positive or 'nuclear' tissues there must be a tissue of the highest potential of all, and since oxidation determines potential, we are justified, on the basis of experimental studies, in considering that *the brain is the positive pole in the organism.*" Page 18.

"According to this conception the organisms of multi-cellular animals as a whole *are wired up in innumerable circuits—the unit of which is the nerve cell and its projected nerve fiber.*" Page 21.

"Having found that the changes in *electric conductivity were consistent with the bipolar theory,* we then by means of *sensitive thermocouples* made simultaneous observations of the temperature changes in the various organs and tissues that might be concerned in *energy transformation under the same normal and pathologic conditions* as those studied in the foregoing conductivity experiments." Page 28.

"We would expect to find that stimulation would produce opposite effects upon the temperature of the brain and of the liver and **OTHER RELATIVELY NEGATIVE ORGANS.** Upon testing these assumptions we found that *the temperature of the brain was increased* and that of the liver **AND OTHER NEGATIVE ORGANS** was decreased or unchanged in the acute stage of stimulation by emotion, by physical injury, by strychnin injection, by the injection of adrenalin, when the output of adrenalin was artificially increased by asphyxia, in the excitant stage of ether anesthesia." Page 29.

"We found by experiment that when **THE GREAT CIRCUIT** *which energizes the organism* was broken by the removal of the negative pole—the liver—the temperature of the brain steadily fell until death occurred; also

that when stimulants such as adrenalin were given, heat production (oxidation) *within the brain* bereft of its negative pole was almost or entirely prevented." Page 29.

"These observations on so fundamental a group of facts as the expected variations in temperature and electric conductivity run parallel with another great group of observations which are just as fundamental, but have a much larger chance of error." Page 30.

"That electro-chemical processes play an important role in the phenomena of life has long been held by bio-physicists and physiologists. *The similarity of the nerve or action current to an electric current* seems to have been observed by the physicists as soon as the characteristics of the *production and conveyance of electric currents* began to be recognized." Page 36.

"In 1835, a French physicist, Becquerel, included a section on the action of electricity on organic bodies in an experimental treatise on electricity and magnetism and from the evidence he presents draws the conclusion: 'These facts are sufficient to show *that electricity probably plays a great role in the animal economy*; and that it should also be included among the means whereby life is maintained in organized bodies. But in what way do these bodies, when they begin to develop, *put into action this electric principle whose action persists throughout their life*? Of this we are completely ignorant. This is, without doubt, one of the mysteries of creation, which man will never be able to fathom.'" Page 36.

"Becquerel reports Galvani's experiments on the electric fish which showed that **WHEN CONNECTION BETWEEN THE BRAIN AND THE ELECTRIC ORGAN WAS BROKEN, THE FISH COULD NOT DELIVER A SHOCK**; a fact also established by Spallanzani:

"1. We think therefore that *the electricity is fabricated in the brain under the control of the will*.

"2. In our opinion the difference between the electric fish and other animals is that in the former nature has placed organs designed for condensing the electricity *which emanates from the brain*, augmenting its tension in such a way as to make of it, as it were, an offensive arm; whereas in the latter this same electricity has only the tension necessary to produce *natural contractions and to accomplish the various functions which are expected of it*."

"Becquerel not only believed that voluntary muscular action is due to electrical action but he advanced the theory that *the chemical changes within the organism are also due to electrical action*:

"It is not enough to advance the opinion that the organic functions operate under the influence of electric forces, it is necessary also to try to prove this by showing that there can exist in the body electric currents which are capable of producing chemical changes."

"Of striking interest is the citation of researches on the acid-alkali reactions of the body by Donne, who made the following conclusion:

"*Electric currents exist in animals* at the surface of the membranes and in the various organs. This theory rests on the principle that when two

bodies, one acid and the other alkaline (or each one playing that role in their reciprocal reactions) are separated by a membrane, a multitude of electric currents continually work through this intermediary. Electricity acts in two ways within the animal economy. It may produce contractions and other derangements of the equilibrium of the organic parts or it may control the chemical reactions which either promote the secretions or are prejudicial to their production.'"

Page 37.

"Gotch and Horsley have shown that during electric stimulation of the cortex, causing muscular action of the leg, a sustained electro-motive force is present in the spinal cord during the continuance of the stimulation. Not only did they demonstrate the presence of an electric wave, but they were able also to identify the conduction paths in the spinal cord over which this wave travelled, thus showing the intricate pathway along which the current found its way from the cortex to the muscles. Gotch and Horsley also demonstrated a persistent negative variation in the cord during electric stimulation of the Rolandic area."

Page 38.

"Howell states that when nerves of one kind are sutured to nerves of another kind, the reaction is determined by the end mechanism; and he states further that efferent nerves are like electric wires—the effect of their stimulation depends on the mechanism found at their ends."

Page 39.

"The infinite network of nerves—wires—in every reactive part of the organism shows that the electric control of the body processes, if such a control exists at all, IS AN ALL-INCLUSIVE CONTROL."

Page 55.

"Since in a bipolar mechanism, the electric current must flow from areas of higher to areas of lower potential, it is necessary to cite such facts as may tend to support the conception that the cells of the brain ARE THE PRINCIPAL SOURCE of the electric energy THAT COORDINATES THE BODY and to show how the direction of the fabricated current is established."

"Clinically the control of the body by the energy fabricated in the brain, which we believe to be electric energy, is indicated by the result of high division of the spinal cords; by the result of the paralysis of the motor end-plates by curare; by the result of the suspension of the activity of the higher brain centers by inhalation anesthesia; by the fact that when the supply of oxygen is cut off no energy is created and equilibrium or death follows. ANY DISABLING INFLUENCE WHEREBY EITHER THE CONNECTION OF THE BRAIN WITH A PART OF THE BODY IS BROKEN OR THE FUNCTION OF THE BRAIN IS DISABLED OR LOST RENDERS THE BODY HELPLESS."

Page 68.

"The one essential role of the blood in a bipolar mechanism would seem at first though to be only that of an oxygen carrier, of a medium of exchange between the nerve cells and the organs and tissues which supply the elements essential to their activity."

Page 86.

"Electric stimulation of the controlling nerve supply of the various voluntary muscles and of the various glands of the body makes these muscles and these glands do what the brain makes them do."

Page 88.

"THE SEVERING OF THE NERVE CONNECTION BETWEEN THE BRAIN AND A MUSCLE LEADS NOT ONLY TO PARALYSIS, BUT TO ATROPHY OF THE MUSCLE; but if the muscle be made to contract at certain intervals by electric stimulation, no atrophy of the muscle follows. Electricity does for the muscle, as far as its function and nutrition are concerned, *what the brain does for it*. Therefore, electricity is adapted to the muscle and the muscle is adapted to electricity." Page 88.

"Not only has the stimulating *nerve current to the muscle* been demonstrated to be an electric current, but in the response itself electricity or heat or both are generated." Page 89.

"It would appear then that *the nervous impulse* to a muscle is the catalyzing agent which 'fires' the energy stored in the muscle cell itself and thus initiates the complex chemical changes—in themselves electrical phenomena, which produce the phenomena—motion or heat—of muscular activity." Page 89.

"Nor does space permit a discussion of *the possible specific function of other parts and tissues* than those most immediately concerned with the fabrication and release of the electrical energy which operates the bipolar mechanism." Page 90.

"We may assume that the stimulus from tetanus toxin, which is known to pass up the axis cylinder, passes along the axis cylinders of the nerve fibers until it reaches the synaptic junction, and closes the circuit, thus causing a contraction. It would appear that closing the circuit at the synapse 'pegs the bell,' so that a vast muscular area becomes in effect one pole of a great battery, *the other pole being the brain, and the nerves the connecting wires*, the circuit of which is closed by the action of the tetanus toxin.

"The Bio-Electrical Reorganization of Disabled Organs and Tissues

"If *physiologic activity* is the equivalent of electric stimulation, then electricity is apparently the means by which cells are organized, for, as Mathews points out, if the eyelids of puppies be kept closed, *the related brain cells* will not be developed. IF THE NERVE SUPPLY TO MUSCLES IS CUT OFF, THE MUSCLE CELLS BECOME DISORGANIZED; but electricity will reorganize them. When limbs are fractured or soft parts injured, voluntary exercise best reorganizes the muscles and nerve cells from the disorganization of disuse. Children who are not allowed to play do not develop strongly; that is to say, their muscles are not organized by the electric energy of exercise. If groups of muscles are not used, they are not so well organized and become weak. It is probable that play and exercise set in motion electric forces by means of which children are systematically built up into all-round physical efficiency.

"Next in value to voluntary exercise, which exercises the driving nerve cell as well as the driven muscle, is electric stimulation of the muscle. Electric stimulation restores the muscle quite as well as voluntary stimulation, but electric stimulation does not as readily reorganize and build up the deteriorated nerve cells." Pages 96-97.

"The effect on the organism of the injection of foreign proteins, as shown by Vaughn, is similar to, if not identical with, the effect of infections. The mechanism of the action of the infections may therefore be regarded as the same as the mechanism of foreign protein reactions.

"The injection of excessive amounts of foreign protein and the absorption of the toxins of infection PRODUCE SIMILAR EFFECTS, and involve certain essential parts of the same mechanism as the emotions and muscular exertion. This statement is based on the following phenomena: Each produces an increased output of adrenalin, a first stage of hyperchomatism of the brain-cells, followed later by chromatolysis, increased thyroid activity, increased body temperature. As a result of each, if excess fatigue is produced, the mechanism may be acutely worn down and completely overcome in death. The organism may be partly reduced by any one of these causes, carried further by another, and finally broken by still another. Their effects are inter-changeable. EACH PRODUCES INCREASED ELECTRIC CONDUCTIVITY OF THE BRAIN IN THE ACUTE PHASE, AND IN THE STAGE OF EXHAUSTION A DECREASED ELECTRIC CONDUCTIVITY OF THE BRAIN. Each produces increased nervousness, and lowering of thresholds to other stimuli.

"The first practical question is this: Is the response of the organism to an infection an imposed injurious mode of attack by the invading microorganism as a means of killing man and other animals, OR IS THIS RESPONSE ONE OF THE EVOLVED MEANS BY WHICH MAN AND ANIMALS DEFEND THEMSELVES AGAINST THE ATTACKING MICROORGANISMS? Assuming it to be the latter, let us analyze the mechanism of *this counter defense* of man against the microorganism in the light of the bipolar theory. If our theory is correct we must point out THE SEQUENCE OF EVENTS from the absorption of the toxin through the period of furious response to recovery or death, and point out the mechanisms which are involved. WE MUST SHOW THAT ELECTRIC ENERGY FABRICATED IN THE BRAIN IS AN ESSENTIAL FACTOR IN THE REACTION. We must show that the muscles participate actively; that the adrenals are active; that the thyroid participates. WE MUST SHOW WHY A RISE OF TEMPERATURE IS OF BENEFIT; why there is no sweating in the first stage; why there may be chills. We must show why the temperature falls during the night. We must show why there is nervousness, loss of mental power, loss of muscular power. And last, and certainly not of least importance, we must show why, in an acute, overwhelming infection, *there is shock and collapse*, with diminished instead of increased metabolism as in the earlier stages; and why, *under such circumstances, death is usually inevitable*.

"The Participation of the Brain:—It is common knowledge that deep narcotization with morphin *reduces the power of the brain* to drive the organism TO TRANSFORM POTENTIAL ENERGY INTO HEAT or into mental or muscular work or to express emotion. We may suppose that for the same reason morphin prevents the electric fish from transforming energy into electricity. In infections, morphin diminishes fever. IN THE ACUTE

PHASE FOLLOWING THE INJECTION OF TOXINS, THERE IS AN INCREASE IN THE CONDUCTIVITY OF THE BRAIN; in the later stages *there is a depression*—morphin minimizes these changes." Pages 104-105.

"After decapitation, or when the muscles *are cut off from connection with the brain*, there is no febrile response to the injection of toxins. It would seem, therefore, that THE BRAIN CELLS RESPOND TO THE PRESENCE OF FOREIGN PROTEINS OR OF TOXINS BY INCREASED OXIDATION, THUS CAUSING AN INCREASED FABRICATION OF ELECTRIC ENERGY WHICH IN TURN DRIVES THE ORGANISM TO MAKE A FEBRILE DEFENSE.

"The Participation of the Muscles.—That the muscles are the *principal mechanisms activated by the brain* in the response to infection is suggested by the facts that (1) THEY PRODUCE FROM 50 to 75 PER CENT OF THE HEAT OF THE BODY; (2) they show fatigue and histologic change as a result of high fever; (3) they are the active agencies in chills." Page 106.

"Fever.—We have suggested the mechanism by means of which increased chemical activity, including fever, is produced, but the following question remains: WHAT ADAPTIVE PURPOSE IS SERVED BY THE INCREASED TEMPERATURE? This question is of peculiar significance in view of the obvious fact that this mode of defense is *itself injurious to the organism*, sometimes causing permanent injury or death.

"First of all, we may assume that THE CHEMICAL INVASION OF BACTERIA CAN BE MET ONLY BY A CHEMICAL DEFENSE; that is, that the foreign protein molecule in a foreign environment will be split up more readily than is the living protein molecule of the defending organ; therefore, the more intense the chemical action of the defense, the more certainly and readily will the foreign protein, living or dead, be split up; THAT IS TO SAY, THE DEFENSE OF THE BODY AGAINST FOREIGN PROTEINS, SUCH AS TOXINS, IS A 'PURIFICATION BY FIRE.'"

Pages 107-108.

"Why does the temperature fall during the night?—The foregoing discussion suggests that it is *because the brain*, being the driving battery, *must be recharged*. This recharging process is probably *accomplished during sleep*, but in order that the chemical defense may be as little interrupted as possible the periods of sleep are light and short. DURING SLEEP THE TEMPERATURE FALLS BECAUSE THE BRAIN IS DRIVING THE MECHANISM LESS FORCIBLY. ALL OF THE BRAIN DOES NOT SLEEP, HOWEVER, nor do all the glands or involuntary muscles, hence the temperature remains above normal, although it usually falls below the day-level.

"Thirst.—When the biologic bipolar mechanism is excessively driven in a *strong defense against foreign living and dead proteins*, LARGE QUANTITIES OF WATER ARE USED. The need of abundant water in the operation of a bipolar mechanism has been described; THAT THAT NEED IS MAGNIFIED IN THE MECHANISM DRIVEN BY INFECTION, IS OBVIOUS. THIS NEED IS MANIFESTED BY THIRST." Pages 108-109.

"If our conception that *living processes are due to the operation of electrical forces* acting in a bipolar mechanism is correct, then MENTAL

PROCESSES SUCH AS IDEATION AND MEMORY CANNOT BE EXCEPTIONS to what we conceive to be AN ALL-EMBRACING LAW. *The intangible nature of these processes and the fact that we are dealing with infinitesimal forces and infinitesimal particles of matter MAKE A DEMONSTRABLE EXPLANATION IMPOSSIBLE.* Nevertheless, on the basis of what is demonstrable, both by the gross and microscopic structure of the brain, by *the demonstrated laws which govern electric forces* and by certain experimental evidence, we CONCEIVE that *mental processes* are subject to the bipolar law." Page 130.

"Insofar as the conscious operations of the mind are concerned these processes of progressive orientation of facilitated paths PRESUMABLY begin with the birth of the individual. On this conception it is not difficult to understand why the nerve fibers find their way so inevitably FROM the brain TO the muscle or gland. Electricity always travels from the positive to the negative pole; from the point or part of higher to the point or part of lower potential. Just as lightning travels from the clouds to the earth, so the current would pass FROM the brain TOWARD the muscle OR the gland with the final laying down of the facilitated pathway, the nerve fiber.

"In like manner, just as the lightning may pass from cloud to cloud, that is, from a cloud of higher to a cloud of lower potential, so pathways may be formed from brain cell or group of brain cells to brain cell or group of brain cells. We can easily imagine that if the clouds contained the needed material and if there were a continuous electric strain between a stationary cloud and the earth or between a cloud of higher and a cloud of lower potential, in due time there would be constructed a conducting path corresponding to a nerve fiber from the cloud to the earth. Moreover, THIS CONDUCTING PATH WOULD BE SPECIFIC FOR THE QUALITY AND QUANTITY OF CURRENT THAT CREATED IT. So within the brain the path created by the electric current instigated by the impingement of light rays on the retina would be specific for identical light rays; the facilitated path created by the electric current initiated by the impingement of sound waves upon the nerve endings in the ear would be specific for identical sound waves.

"The following facts may be cited in support of this conception of the formation of facilitated pathways in the white matter of the brain which we conceive to be the foundation of mental processes.

"1. There are no myelin sheaths in the white matter.

"2. The white substance contains many neurofibrils which are apparently specialized paths.

"3. As Cajal has shown, in certain parts of the brain in children from five days to a month old or in monkeys or rabbits some days old, it is possible to trace the entire length of certain of these fibers, the length of which becomes extended and their connections increasingly complicated as the age of the animal or individual increases. As he says: 'the extension, the increase and the multiplication of appendices of the neurones is not otherwise arrested at birth but continues and nothing is more striking than the difference which exists between the newborn and the adult man from the point of view

of the length and the number of the cellular ramifications of the second and the third order.'” Pages 137-138.

“Thus an action or a memory or a thought may be produced by the physical energy of sight, hearing, taste, smell, touch, or pain which in turn ‘fires’ certain brain cells that in turn ‘fire’ certain muscle cells or certain other brain cells, producing new ideas or awakening memories. And in turn these thought waves or new ideas or memories may also send a charge over facilitated pathways firing the same muscles, stimulating the same glands as those stimulated when the electric current which originally produced the facilitated pathway made its original impression.

“From a superficial point of view this last type of action would be regarded as an act of will. Such terms as the ‘will’, ‘judgment’, ‘reflection’, ARE BUT CONVENIENT TERMS for expressing what would appear IN REALITY to be an intricate specific action of a cell or group of cells upon a cell or group of cells. Education and training, according to this conception, would be the effects of any mild or fewer stronger charges passing over constantly changing facilitated pathways.

“In accordance with this conception, punishment, discipline, training, monomanias, broadmindedness, vocations—all the several qualities of ‘mind’ would mean the sum of the potential in the brain cells plus the original quantity and quality of current brought to the brain cells by an external or an internal stimulus, plus the facilitated pathways, plus the millions of possible lines of force or specific conducting paths; a sum which may be conveniently expressed by the one term—‘action patterns.’” Page 145.

“If the bipolar theory is to stand it must not only show a general plan of evolution from the original unicellular organism to the complex, multicellular organisms of the the higher animals and man, but it must explain the mechanism of cell division upon which depends not only the evolution from unicellular to multicellular organisms but also the development of each multicellular organism from the single cell—the sperm, the ovum. It must account also for the variations and identities which constitute the physical characteristics of each individual; that is, it must explain HOW THE PHYSICAL CHARACTERISTICS OF PARENTS ARE TRANSMITTED TO THE OFFSPRING.

“While we must, of course, acknowledge OUR INABILITY TO SUPPLY SOLUTIONS for these problems, nevertheless the following suggestions are offered as indicating THE POSSIBLE ROLE OF ELECTRIC ENERGY IN PROCESSES OF REPRODUCTION.

“It should be considered first of all that no living organism is static either in size or in function. According to our conception, LIFE ITSELF IS DUE TO A STATE OF UNBALANCE BETWEEN THE POSITIVE AND NEGATIVE ELEMENTS IN THE PROTOPLASM. The primary result of this state of unbalance within a cell, whether that cell be a separate organism—a protozoan, or a constituent part of a multicellular organism, is the initiation of processes of growth. According to our conception, LIFE ITSELF is due to the positive and negative electrical elements of protoplasm.” Page 148.

"We do not presume even to attempt to identify the electrical origin and development of each stage in the process of cell division. We do assume, however, that fundamentally, cell division IS AMENABLE TO THE LAW OF BIPOLARITY WHICH, WE BELIEVE, IS THE BASIS FOR ALL LIVING PROCESSES."

Page 150.

"It remains to offer a suggestion as to the possible manner in which the characteristics of the parent cells or of the parent aggregation of cells is impressed upon the new cell or on the descendant aggregation of cells. In accordance with the bi-polar theory the nucleus of the original unicellular organism — the POSITIVE POLE, WAS THE PROTOTYPE OF THE BRAIN AND CENTRAL NERVOUS SYSTEM OF THE MULTICELLULAR ORGANISMS. As we have noted above, the unicellular organism cannot function without a nucleus. It is the dynamic center, the control center, the organizing center. IF THE NUCLEUS IS REMOVED FROM A UNICELLULAR ORGANISM IT CEASES TO FUNCTION AND CANNOT REPRODUCE ITSELF. We MUST CONCEIVE therefore that in the nucleus of the ovum must reside THOSE POTENTIAL QUALITIES which are to govern its later activities.

"In the unfertilized ovum the nucleus is balanced by the cytoplasm, hence exerts no influence upon it. As soon, however, as the nucleus of the ovum is reinforced by the nuclear spermatozoon of the male A DIFFERENCE OF POTENTIAL IS ESTABLISHED which becomes at once effective in the initiation of the processes of cell division and differentiation by means of which the new individual is constructed.

"These premises, however, DO NOT EXPLAIN HOW the reinforced nucleus of the ovum can construct out of the apparently unorganized cytoplasm of the ovum and its own structure, a new individual resembling its parents. IT MUST BE PRESUMED that there exists in the cytoplasm and in the nucleus the physical antecedents of the structures and parts of the fully developed organism. Just as in many unicellular organisms, projections from the nuclear structure appear to have definite neuromotor functions, and parts of the cytoplasm are differentiated to perform the functions respectively of indigestion, digestion, and elimination, so we may consider that in the cytoplasm and the nucleus may be found in miniature the organs and tissues of varying functions in the developed individual. Moreover, in the fertilized ovum are at once initiated electrical currents between the nucleus and the cytoplasm, by means of which the rudiments of the muscles, glands and viscera begin to be organized, electric currents which differ not at all from those which accomplish the further growth and development of the child after birth."

Pages 157-158.

"Thus each organ of a plant or of an animal may be regarded as a separate species, and as such must furnish the specific energy to reproduce itself in the seed, just as if the organ were leading a separate existence and reproducing itself as simpler organisms do. SEX ORGANS HAVE THE ABILITY TO AFFECT PROFOUNDLY CERTAIN OTHER ORGANS OF THE BODY, SUCH AS, FOR EXAMPLE, THE BRAIN, THE THYROID, THE ADRENALS, ETC. If the diminutive cells of the sex organs can exert major

influences on distant powerful organs, one would suppose the reverse would be true, and that each organ must exert a distinct influence upon the cells of the sex organs."

Page 160.

"An important point in our conception is that WHAT IS INHERITED IS THE PATTERN OF ENERGY, NOT THE CHEMICAL ELEMENTS OF THE PARENT. The atoms and molecules of the chemical elements in the developing plant or animal are the building stones WHICH ARE USED BY THE ENERGY OF THE PRIMARY PHYSICAL UNIT. From identical atoms and molecules, therefore, this *primary energy mechanism will build identical forms*. If by the application of another form of specific energy than that by which it was created the physical structure of this labile unit is altered, a corresponding change in the related characteristics of the new individual will be carried on."

Page 161.

"FOR IF LIVING ORGANISMS ARE ENERGY TRANSFORMERS, IT WOULD SEEM LOGICAL THAT THE PRIMARY ROLE SHOULD BE PLAYED BY ENERGY and the secondary by form and structure."

Page 162.

"If the removal of one testicle or one mammary gland during development is followed by an enlargement of the other, it indicates that forces AT A DISTANCE are capable of controlling their growth — i.e., THE ORGANISM HAS A QUOTA OF SPECIFIC ENERGY WHICH MAY BE DRAWN UPON SELECTIVELY."

Page 166.

"When a rose or an apple tree is grafted the graft will produce a flower or fruit after its own kind and unlike the flower or the fruit of the bush or tree in which the graft was implanted. But the tree which in turn grows from the seed of the flower or fruit of the graft, will in turn produce not the apple or rose of the graft but an apple or rose like the tree or bush in which the graft was implanted. Why did the seed from the fruit of the graft NOT produce a tree whose fruit was like its own fruit? It could only be because INFLUENCES FROM THE REMAINDER OF THE TREE SENT ORGANIZING ENERGY INTO THE BUD AND FRUIT OF THE GRAFT CREATING A MINIATURE 'PRE-FORM' OF THE ORIGINAL APPLE TREE IN THE SEED; just as the organizing energy of animals creates in the sex cells *new animals bearing the characteristics of the parent*."

Pages 167-168.

"In brief, then, our conception may be summarized as follows: As in the adult individual, his personality — his individual characteristics result from specific vibrations in this or that part of the organism in response to environmental influences, THE SUM TOTAL OF THESE ELECTRIC RESPONSES CONSTITUTING HIS OR HER PERSONALITY; so in the offspring these initial specific vibrations carried through the development of the new individual in external form, in so-called '*mental*' characteristics, in physiological and in '*psychic*' tendencies, will determine the personality — the individual characteristics of the new individual."

Page 168.

"IT IS NOT EXPECTED that either the argument or the evidence which we have presented in support of our conception that man and animals are bipolar mechanisms WILL PROVE FINALLY CONVINCING; the only evi-

dence whereby any theory regarding the laws in accordance with which the organism operates can be finally established will be either the successful construction of an organic cell or the ultimate subjection to experimental test of every so-called PSYCHIC as well as every obviously physical organic phenomenon. THE IMPOSSIBILITY OF CREATING A LIVING BEING ON THE MODEL OF A LIVING BEING, HOWEVER, DOES NOT INVALIDATE THE THEORY ANY MORE THAN THE EXISTENCE AND STRUCTURE OF THE ATOM IS INVALIDATED BECAUSE MAN CANNOT CONSTRUCT AN ATOM."

Page 170.

"If we are right in our assumption that *the brain is the part of highest potential* in the organism—the positive pole—then we would expect to find evidence that the rate of oxidation *in the brain is higher* than in any other tissue. We would also expect to find that as the result of stimulation the positive and negative poles—the brain and the liver—would respond in opposite directions, thereby increasing the difference in potential between them."

Page 180.

"In accordance with the bipolar theory, the state of iodism, which is the analogue of hyperthyroidism, should be accompanied by *an increase in the electric conductivity* of the dominant tissues of the body. In accordance with the bipolar theory, excision of the liver and excision of the adrenals should cause a decrease in the electric conductivity of the brain. In accordance with such a theory, one would expect that the injection of acids would decrease conductivity, and that whereas loss of sleep would decrease conductivity, sleep itself would restore the normal conductivity of the brain. The application of these tests was regarded as an essential to prove or disprove the validity of the theory. If a single one of these should fail, the entire theory must fail."

Page 181.

"This finding if confirmed by later experiments will be a strong indication that the temperature changes within the brain CANNOT BE ENTIRELY, if at all, DUE TO VARIATIONS IN THE BLOOD SUPPLY TO THE BRAIN."

Page 188.

"IT IS OBVIOUS THAT NEITHER HEAT ENERGY NOR ANY MECHANICAL FORCE CAN BE TRANSMITTED BY THE NERVE FIBERS TO ACT AS A CATALYZING AGENT UPON THE VARIOUS TYPES OF CELLS IN THE ORGANISM, EXCITING IN EACH THE TYPE OF ACTIVITY DEMANDED FOR THE PERFORMANCE OF ITS SPECIFIC FUNCTION. THE FORM OF ENERGY TO BE IDENTIFIED, THEREFORE, MUST BE INTERMOLECULAR OR CHEMICAL OR ELECTRIC ENERGY.

"SINCE ELECTRICITY CONTROLS CHEMICAL AND INTERMOLECULAR ACTION, AND SINCE CHEMICAL ACTION — OXIDATION — CONTROLS THE PRODUCTION OF ELECTRICITY IN AN ELECTRIC CELL CONSTRUCTED AFTER THE PATTERN OF THE CELLS OF THE ORGANISM, WE CONCEIVE THAT ELECTRICITY LIBERATED IN THE CELLS OF THE CENTRAL NERVOUS SYSTEM BY OXIDATION AND CONVEYED TO THE CELLS BY THE NERVE FIBERS ACTS AS A CATALYZING AGENT BY MEANS OF WHICH THE ENERGY IN EACH CELL OF THE ORGANISM IS CONTROLLED BY NERVE ACTION. In

cells which are not innervated, the same structural arrangement is found; and in these cells also oxidation is the source of energy." Page 194.

"Electricity is omnipresent in all forms of matter, in atoms, molecules, solutions, colloids. Electricity passes by means of conductors from a point of higher potential to one of lower potential, always along the path of least resistance. At any point in its passage the electric current is capable of transformation into heat energy, mechanical energy or chemical energy. An electric current is produced by a generator or battery whereby a difference of potential is maintained between the poles." Page 194.

"Finally, of the utmost value in its support of the conception that the organism as a whole is operated by electricity should be cited the biological fact that the application of electricity to organs or tissues can make them perform all the functions which they normally perform under nervous stimulation." Page 196.

"Heat in common with electricity and with light is radiant energy, but while the latter forms of energy are electronic phenomena, heat is concerned with the activities of atoms and molecules. As heat is radiant energy, its manifestations are governed by the same primary physical laws as those which govern electric energy and light energy. Moreover, in its manifestations in living organisms and in inorganic matter, heat energy is indissolubly linked with electric energy, light energy and chemical energy." Page 197.

"Conversely, heat promotes chemical action. When we consider that chemical action means an alteration of atomic relations, and hence of electronic relations and that the relation between heat and oxidation is reciprocal, that heat promotes oxidation, oxidation producing heat, the direct relation of heat to the electric phenomena of the organism becomes apparent."

Pages 197-198.

"The source of heat within the organism has always been the subject of discussion, Lavoisier being the first to prove that it is the result of the combustion of the tissues themselves. Following Lavoisier VARIOUS INVESTIGATORS HAVE ENDEAVORED TO LOCATE THE PRINCIPAL SITE OF THIS COMBUSTION in some specific organ or tissue — the lungs, the blood, the muscles, etc. IT IS ONLY WITHIN COMPARATIVELY RECENT YEARS THAT IT HAS BEEN GENERALLY ACCEPTED THAT THE COMBUSTION TAKES PLACE WITHIN THE LIVING CELLS THEMSELVES."

Page 199.

"The purpose of this thesis has been to present certain evidence and discussions based upon that evidence in support of the theory that man and animals are bipolar mechanisms and that THE ORGANISM NOT ONLY IS DRIVEN BY ELECTRICITY BUT THAT IT WAS ORIGINALLY CREATED AND CONSTRUCTED BY ELECTRICAL FORCES.

"Our thesis is based upon the fundamental conception that LIFE IS A DYNAMIC NOT A STATIC PHENOMENON and that, therefore, TO ATTEMPT TO DEFINE LIVING PROCESSES IN TERMS OF THEIR HISTOLOGICAL STRUCTURE IS AS INADEQUATE AS TO ATTEMPT TO INTERPRET THE PHENOMENA OF THE SOLAR SYSTEM IN TERMS

OF THE ELEMENTS OF WHICH THE SUN AND THE PLANETS ARE COMPOSED. The phenomena of the solar system are dynamic phenomena. The physicist has discovered that the phenomena of the molecule, of the atom and of the electron are dynamic phenomena, so, also, must the phenomena of *living* beings be interpreted. They are dynamic phenomena and can be interpreted, therefore, only in terms of that type of energy whereby they are produced. Any consideration of the structure of *living* organisms therefore must be related to the manner in which that structure is utilized in the dynamics of the organism as a whole.

"Certain characteristics, therefore, which pertain to all *living* organisms should be summarized here since upon them the development of the bipolar theory primarily depends.

"1. The organs, the cells, the functioning parts within the cells *are inter-related by means of nerve fibers* and protoplasmic bridges forming a syncytium (Sedgwick). The energy units of the protoplasm itself are interrelated by means of a meshwork of protoplasmic threads. **LIVING MATTER, THEREFORE, IS STRUCTURALLY EQUIPPED FOR A UNIVERSAL CIRCULATION OF ENERGY.**

"2. As universally present in *living* matter as the intercommunicating fibers, or lines of force, are the lipoid films. These films separate the cells from each other; they separate the electrolytic solution within the cells from the electrolytic solution in which the cells are suspended; they separate the nucleus from the cytoplasm and from the nucleolus. Lipoid films also bound the spherules and granules within the cell. They are universally present in protoplasm.

"3. In living organisms an acid-alkali balance on opposite sides of the dielectric films is maintained by a difference in the concentration of H- and OH-ions.

"4. *Living tissues have electric capacity.*

"5. *Living* tissues contain certain electrolytes among which potassium is of primary significance since it is radioactive and has the power even in combination of orientating other molecules at a distance.

"6. *Electric phenomena are always present in living matter.*

"7. The *living* transformer of energy obeys the same laws of the conservation of energy as do non-living energy transformers.

"8. Irritability, assimilation, reproduction, the universal characteristics of *living* matter as distinguished from the non-living, **ARE ELECTRIC PHENOMENA.**

"9. The structure of the molecules and atoms of *living* systems is that of a crystal. In the non-living crystal the lines of force are static and the crystal grows by accretion. In the *living* crystal the lines of force are dynamic and the crystal grows by reproduction.

"On the foundation of these universal characteristics of *living* matter has been constructed the bipolar theory, the argument in favor of which may be briefly summarized as follows:

"The living and non-living are chemically identical, the living differing from the non-living not in substance but in the utilization of non-living material for the construction of mechanical devices *that have the power of transforming energy and of reproducing themselves.*

"In accordance with the bipolar theory, these processes which distinguish the *living* from the non-living ARE DUE TO ELECTRICAL FORCES WITHIN THE PROTOPLASM, which endow the protoplasm with the essential qualities of irritation, assimilation and reproduction. It is due to these electrical processes that groups of the protoplasmic energy units become associated in cells. Within the cells identical electrical forces produce the mitotic processes by means of which are formed the paired identical parts, each of which forms a new cell. And even before the protoplasm is formed, electric forces arrange the atoms and molecules as building stones, each in its own place, to form the essential structures of the protoplasm."

Pages 213-214-215.

"Thus the specific characteristic which differentiates the *living* animal organism from the non-living materials of which it is composed would appear to be *the frequency and force of these electric discharges* rather than its static structure. An animal, therefore, is an ENERGY phenomenon rather than a form phenomenon.

"On the basis of this assumption, it is necessary to identify *the original source of the forces* which transmitted this characteristic to the atoms and molecules of the colloids within which the first living organism arose. This we may assume to have been the vibrant energy of LIGHT WHICH OBVIOUSLY IS THE ULTIMATE SOURCE OF LIFE. We thus assume that life may be defined as *the expression of the specific energies* emitted by atoms and molecules, which energies in turn were given them by light. In accordance with this conception the composition of the *living* organism must be constantly changing. *Electric energy governs the composition of the structure of the organism and the composition and arrangement of the structure* in turn makes possible the transformation of energy. That is, the energy and structure of the organism is constantly changing and yet apparently the structure and *the energy remain constantly unchanged.*"

Pages 215-216.

"We concede that our thesis has not been finally proven. *Final proof is lacking regarding practically every point.* We concede that the bipolar theory would fail to explain living processes *if any other form of energy than electric energy could be proved to be adapted to construct and to operate an organism which is identical with or analogous to that of the human organism.*"

Page 220.

"If any other force such as heat or light or gravitation or intermolecular force or chemical action could so universally fit into the great scheme of the *living* and the non-living universe as does electricity, then the electric or bipolar theory of living organisms would be without foundation." Page 221.

"Among the various phenomena which are discussed by Loeb, those of heliotropism are especially susceptible of an electrical interpretation.

"We must, therefore, conclude that the light produces in an eye or an element of the photosensitive skin a chemical reaction which results in the formation of a certain mass of a reaction product. This mass acts on the peripheral nerve endings AND BRINGS ABOUT AN AS YET UNKNOWN CHANGE IN THE BRAIN ELEMENTS WITH WHICH THESE NERVE ENDINGS ARE CONNECTED. This change in turn affects the tone or tension of the muscles with which the brain elements are connected."

Page 225.

"There is considerable experimental evidence that *impulses sent by the brain to the various organs and muscles of the body have an electrical character*. These nerve impulses have been found to travel at the rate of 80 feet per second, which of course is much less than the velocity of electrical impulses along a wire or through space. If the speed 80 feet per second is correct, *then the impulse along a nerve is not of the exact character of those along wires*. Nevertheless one can well imagine a shift of electric field by displacements of ions, which move at a velocity through solutions much slower than impulses along a wire.

"*The outstanding point to consider is that nerve impulses are electrical in character*. The nerves have been found to be unaffected in temperature when impulses are sent along them, but one knows that the core of the nerve is a very good conductor. The amount of energy transformed to heat when small currents traverse this low resistance would be too small and perhaps too difficult to determine experimentally in a minute nerve structure. *To repeat, the outstanding fact is that nerve impulses are electrical in character. Therefore there must be an energy transformation with the necessary condition that one of the aspects of energy has been electrical*. In other words, to make possible and to give rise to these electrical impulses there must be a supply of electrical energy. Fundamentally a supply of electrical energy means a difference in potential, that is, a voltage.

"In every dynamic electric circuit, the discrete electrical charges must, in their coursing through the circuit, take on energy in part of the circuit, and give out energy in other parts. When these electrical charges are raised in potential, that is, go from negative to positive, they take on energy. If the circuit is not closed, *this passing from negative to positive potential stops very quickly*, with the result that one has a static condition established, as in a dry battery not connected to any electrical device. If, however, there is a closed circuit, then in the external circuit, as one says, the electrical charges pass from a high potential to a low potential, that is, from positive to negative, and in so doing give out energy. **THIS ENERGY GIVEN OUT MAY RESULT IN HEAT, mechanical motion, or chemical decomposition.** This means, of course, that the difference in potential originally established statically must now be maintained dynamically within the internal circuit, if there is to be continuous energy transformation maintained. *In the body the network of nerves corresponds to the external circuit, where energy is given out by the nerve to the muscle*. This amount of energy is very small, and could be considered as a trigger to release a greater amount of energy in the muscle or the organ concerned. This trig-

ger action, in which a small amount of energy releases a great amount of energy, that is, *the nerve impulse* having in it the concept of an amplifier, is a striking fact for consideration. *The nerve impulses are sent out by the brain.* Hence it is feasible to regard the brain as the positive pole of the battery. On account of conductivity and temperature experiments already performed together with the outstanding fact that a number of organs except the liver can be removed and life ensue, the liver can be regarded as the negative pole of the battery, that is, it is reasonable to consider that the liver is the only organ which is absolutely essential in the body's electrical circuit. The proposition is, therefore, that as long as there exists a potential between brain and the liver, *there would be available a supply of electrical energy from which the nervous system could get energy for its nerve impulses*, and thereby life could be maintained. *If there is no supply of electrical energy, that is, in electrical terms, if no potential exists between these two organs, then death ensues, since no stimulus could be given to any muscle or organ.*"

Pages 251-252.

"It is an experimental fact that the nerve sheath is a very poor electrical conductor, while the nerve core is a good conductor. This would make it very possible for the network of nerves along which electrical impulses are passing to be imbedded within the battery structure itself, and thereby function completely as an electrical circuit."

Page 254.

"EVERY ACTIVITY OF LIVING TISSUE IS ACCOMPANIED BY ELECTRICAL CURRENTS; and many activities are also initiated by electrical currents. In fact, the work of the investigators referred to above shows how strong is the tendency to consider that *vital processes depend upon electric energy*, by means of which also the protoplasm is renewed, and the whole mechanism is constructed.

"In view of this trend of physiological conceptions, *the electrical properties of living protoplasm become of vital interest.* As this interest extends, the need of definite qualitative data increases. The laws which govern the action of electrical forces in inorganic systems are known exactly. It is possible to calculate exactly how much heat, or what chemical change, or how much work will result from the passage of a current of known strength through a known resistance during a definite period of time.

"The two independent factors, current and resistance respectively, depend upon the amount of available electrical energy and the constitution of the system in which its conversion into heat, or chemical change, or other type of work is to be accomplished.

"The action of electrical energy in protoplasm, although all the conditions are far more complicated than in inorganic substances, is governed by the same laws. In protoplasm, as in inorganic matter, electrical currents will always choose the path over the lowest available resistance; and in protoplasm, as in inorganic matter, the current plays toll to the friction offered by the system through which it passes.

"The facts already established regarding bio-electric currents are sufficient to indicate the importance of further investigation, especially along certain lines. For example: *What is the range of the electric conductance of*

living tissue? How does that range compare with that of other electrical conductors? Is the range of conductance the same for all types of tissue, and in each tissue does it remain constant under all conditions? Is the electric conductance of each tissue a factor in the production of the activities of the organism, to which a fairly constant value can be assigned?"

Pages 259-260.

"1. In an attempt to determine the specific electric conductivity of various normal animal tissues and whether or not variations in function are accompanied by measurable changes in their electric conductivity, 4,764 sections from 455 rabbits and 219 sections of pathological human tissues have been measured.

"2. The specific normal conductivity of the cerebrum, cerebellum and liver can be estimated within a narrow range; while the normal conductivity of other tissues can be estimated within a sufficiently narrow range to determine the order of their relative conductivities.

"3. The spinal fluid has the highest conductivity of any of the tissues studied, the lung and the liver the lowest.

"4. The order of the conductivities of the following tissues was unchanged in all the animals studied with the exception noted in (6) viz., spinal fluid, bile, blood, voluntary muscle, cerebrum, cerebellum, liver, lung. In a limited number of observations the conductivity of the heart fell between that of the cerebellum and the liver, but on account of the wide range of the individual measurements, this cannot be considered as established.

"5. The conductivity of normal tissues appears to vary according to the season and the general environment.

"6. In every normal adult animal studied the conductivity of the cerebrum was higher than the conductivity of the cerebellum. In fetuses and in very young rabbits this relation was reversed — the conductivity of the cerebellum being higher than the conductivity of the cerebrum until about the time when the young rabbit left the nest and began voluntary activities, when the normal adult conductivity relation of the cerebrum and the cerebellum appeared to be established. A most significant corollary to this observation was found in the post-mortem examination of the brains of two patients, one of whom died after days of unconsciousness resulting from a brain tumor, while the other who died from carcinoma of the stomach, was conscious to the end. In the patient who had been unconscious, the conductivity of the cerebellum was higher than that of the cerebrum. In the other patient, as in all our normal animals, the conductivity of the cerebrum was higher than that of the cerebellum.

"7. The conductivity of the gray matter of the brain is higher than that of the white matter.

"8. Exhaustion from any cause — surgical shock, insomnia, emotion (fright), infection, etc. — is marked by a diminished conductivity of the brain and an increased conductivity of the liver."

Pages 291-292.

1. Influences which affect the general physical condition of the organism produce changes in electric conductivity in the dominating reactive tissues,

these changes being uniformly and measurably manifested in the brain and the liver. Apparently these changes in conductivity appear more promptly than any gross clinical alteration.

"2. Apparently the liver is more promptly and more markedly affected than any other tissue, as animals showing either no or very slight changes in the cerebrum and cerebellum will often show a marked alteration in the conductivity of the liver. On account of the wide variation in liver measurements and the apparent susceptibility of this organ to seasonal and environmental changes, the effects of applied agents are best determined by measurements of the cerebrum and cerebellum." Page 294.

"5. These studies indicate that electric conductivity measurements provide a means whereby to further the interpretation of the normal operation of the organism, and whereby to measure the progress of pathological processes within the various organs and tissues.

"6. From our findings to date, it would appear that the intra-cellular changes in exhaustion and shock which are revealed by the microscope are paralleled by alterations in electric conductivity, and that both the histologic and the electric changes bear a direct relation to the vitality of the organ." Page 294.

"However, to determine finally whether or not the variations in the histologic picture and in the electric conductivity are parts of one and the same process as that manifested by changes in functional activity, it was necessary to devise some method by which the functional changes in the cells might be measured in the living animal. Only by such a measure could it be ascertained whether or not changes in electric conductivity indicate changes in functional activity. Clinical evidence would appear to demonstrate that this is the case, but clinical evidence cannot be accurately measured, nor does it identify without question the organs which are principally concerned. Some accurate index that could be applied to the organ itself in the living animal was essential.

"Variations in functional activity indicate variations in oxidation; variations in oxidation are manifested by variations in heat production. If heat is a constant product of functional activity, then, if we could measure the progressive changes in the temperature of the various tissues and organs during the various phases of excitation and exhaustion under conditions identical with those formerly studied, we not only should be able to check our findings in the previous researches but should be able finally to link those findings with the clinical evidence.

"As the first means to this end we decided to use the method of measurement employed by physicists for the measurement of minute temperature variations, that is, to employ thermocouples so constructed that they could be applied to the brain, liver, muscle or other tissue of the living animals." Pages 296-297.

"In Schiff's research thermocouples were employed which were applied directly to exposed nerves or inserted into different parts of the brain. The author felt that he had established the following points:

- "1. That the irritation of the nerve increased its temperature.
- "2. That successive irritations produced diminished response of the nerve." Page 297.
- "3. That every peripheral irritation gave a response to the brain manifested by increased temperature." Page 298.
- "7. That not only tactile sensation but stimulation of all the organs of the sense produced an increase in the temperature of the cerebrum." Page 298.
- "9. That psychic excitation, independent of the sensations which produced it, was accomplished by a production of heat in the nerve centers, which was quantitatively greater than the heat engendered by less complex sensations." Page 298.

Ten years later (1936), Dr. Crile issued another book, *THE PHENOMENA OF LIFE*. In this work he presents continued CLINICAL research of ten years based on his "Bipolar Theory of Living Processes" of ten years previous.

A study of quotations shows elaboration and more practical application, all which comes closely akin to the Chiropractic practice of the Chiropractic principle.

"THE PHENOMENA OF LIFE"

By George Crile. Edited by Amy Rowland. Published by W. W. Norton & Company, Inc., New York. Copyright, 1936.

"Oxidation produces radiant energy.

"Radiant energy generates electric currents in protoplasm.

"Electricity is the energy that governs the activity of protoplasm.

"The normal and pathological phenomena of life are manifestations of protoplasm.

"Therefore the phenomena of life must be due to radiant and electrical energy." Page 17.

"We shall describe first the long series of researches which were undertaken in the hope of discovering the nature of the energy that is lost as a result of physical injury, emotional excitation, infection, etc., that is, the search for the fundamental mechanism involved in exhaustion, shock and death.

"In many years of biophysical studies we accumulated data which tended to show the validity of our syllogism as applied to protoplasm generally. We then tested whether this conception would interpret the function of the special senses, the brain, the sympathetic nervous system, the adrenal glands, the thyroid gland, the liver and the muscles; that is, we endeavored to find whether this conception would interpret the normal function of organs. We then turned from the normal to the clinical aspect to discover whether or not the play of radiant and electric energy could account for the shock,

exhaustion, hemorrhage, muscular exertion, infection, asphyxia, lack of sleep, etc. We next endeavored to discover whether or not radiant and electric energy could account for the action of anesthetics, narcotics, stimulants and poisons. We also made an investigation to discover whether or not radiant and electric energy could account for the action of anesthetics, narcotics, stimulants and poisons. We also made an investigation to discover whether or not radiant and electric energy could account for the phenomena of such diseases as hyperthyroidism, neurocirculatory asthenia, polyglandular disease, peptic ulcer, and diabetes." Pages 17-18.

"Throughout these researches our findings have been constantly tested in the crucible of the clinic. If any finding could not stand this test it was discarded, as any theory regarding the nature of living processes must explain the vicissitudes of life that are seen daily by the surgeon." Page 18.

"In 1887, on the day after I became an interne in University Hospital, Cleveland, William Lyndman, a healthy young medical student, was brought into the hospital in the state of profound shock, both of his legs having been crushed by the wheels of a street car. He was perspiring, his face was pale and drawn, his respiration was hurried, his pulse soft and slow. He had lost but little blood. It became my duty to administer chloroform while Dr. Frank J. Weed performed an amputation at the thigh.

"Following the operation, the patient exhibited a shrunken countenance, a rapid, feeble, failing pulse, pallor, cold sweat, sighing respiration, restlessness, semi-consciousness. I attended him through the night and noted his steadily failing faculties and deepening depression. In the early morning he died. This was the first death I had ever witnessed.

"The postmortem showed all the organs and tissues to be normal in structure. On the known morphologic basis of his organs, per se, young Lyndman was not dead.

"During the night I had made notes on the inexplicable phenomena of this failing mechanism. *What was it that was failing?* What was it that this young medical student possessed up to the moment of his accident that he lost by reason of the crushing of his limbs without material loss of blood; and why was the treatment for shock which was applied all through the night of no benefit?" Page 21.

"What impressed me most in this slow fading away of young Lyndman was the failure, IN CONCERT, of every organ of the body. Looking collaterally at that time, physics and chemistry had made none of their revolutionary advances. LIVING ENERGY WAS REFERRED TO AS VITAL ENERGY, AS SOMETHING NOT TO BE UNDERSTOOD. MEDICINE WAS LARGELY EMPIRICAL.

"In my questionings there was one favorable element—I never even suspected the extent of my ignorance with respect to the problem I was formulating for myself. The problem was: What was Lyndman? Why did he leave his habitat just because his legs were crushed and he had had an anesthetic and an amputation, since the morphological appearance of all of his essential organs showed apparently that his body was as good a habitat

as before the injury? AUTOPSY REVEALED NO LESION IN ANY VITAL ORGAN."

Page 22.

"I found that the more richly a given area was supplied with sensory and vasomotor nerves, the more rapidly was the animal exhausted when such an area was subjected to injury, and that injury of a given area produced shock in proportion to the severity of the trauma and the duration of the application of the injuring agent. I found that infection, hemorrhage, asphyxia, cold, injury, exertion, stimulation, emotional states and lack of sleep, each added to the effects of the others. THE CONSTANT FACTOR, HOWEVER, WAS ALWAYS A LOSS OF ENERGY."

Pages 22-23.

"We then proposed the hypothesis that IF DEATH FROM SHOCK WAS NOT DUE TO FACTORS IN THE CIRCULATION or in the respiration, it must be due to fundamental changes in the chemistry of the blood itself. In collaboration with Dr. M. L. Menten, Dr. W. J. Crozier, and Dr. W. B. Rogers, I conducted experiments on the hydrogen-ion concentration of the blood, and found that the buffer substances in the blood *continued to be effective up to or near the time of death*, and that there was little or no variation in the hydrogen-ion concentration during the development of shock. Even when all the other symptoms of shock were being exhibited, the hydrogen-ion concentration of the blood suffered little change. IT WAS CLEAR, THEREFORE, THAT THE CHANGES IN THE HYDROGEN-ION CONCENTRATION OF THE BLOOD WERE NOT THE PRIMARY FACTOR THAT CAUSED SURGICAL SHOCK.

"During these long-continued researches, six facts had been established which have been of theoretical and practical importance.

"1. We demonstrated conclusively that the local application of cocaine to the laryngeal mucous membrane, before this membrane was subjected to physical irritation, prevented completely reflex inhibition of the heart. WHEN COCAINE WAS APPLIED TO NERVE TRUNKS OR TO THE SPINAL CORD, WE FOUND THAT NEITHER AFFERENT NOR EFFERENT IMPULSES OF ANY KIND COULD PASS, AND NO AMOUNT OF TRAUMATISM IN THE AREAS PERIPHERAL TO THIS BLOCK COULD CAUSE SURGICAL SHOCK. Upon this principle, the first shockless operations were performed in 1897, and a new principle in surgery was established.

"In addition to its practical value, THE FACT THAT THE BLOCKING OF A NERVE TRUNK BY COCAINE PREVENTED SHOCK had an important theoretical significance, AS IT SHOWED THAT WHATEVER WAS THE MECHANISM THAT MAINTAINED THE NORMAL ENERGY OF THE BODY IN HEALTH AND WAS LOST AS A RESULT OF PHYSICAL INJURY, THAT MECHANISM WAS REACHED OVER THE NERVOUS SYSTEM EXCLUSIVELY. THIS FACT LED TO AN ATTACK UPON THE PROBLEM FROM AN ENTIRELY DIFFERENT STANDPOINT."

Pages 23-24-25.

"6. The sixth interesting and significant observation that was made in the course of these experiments was THAT THERE IS A CLEAR DISTINCTION BETWEEN SURGICAL SHOCK AND THE SUDDEN SUSPENSION

OF ENERGY WHICH IS CALLED COLLAPSE, SUCH AS RESULTS FROM INHIBITION OF THE HEART-BEAT, ASPHYXIA, A RAPID HEMORRHAGE, AND AIR EMBOLISM. The animals in collapse that were resuscitated by the injection of adrenalin immediately regained their normal vigor, in contradistinction to the long slow recovery of those animals that were resuscitated while in the state of shock." Page 26.

"UP TO THIS POINT WE HAD SHOWN THAT THE ACTIVE GENERATION AND CONTROL OF THE VITAL ENERGY OF THE BODY WAS PRIMARILY THE FUNCTION OF THE BRAIN, THE HEART AND THE ADRENAL-SYMPATHETIC SYSTEM. THE PRECISE NATURE OF THIS ENERGY, HOWEVER, HAD NOT BEEN IDENTIFIED.

"Not having found *the cause of shock* in the circulation, in the respiration, in the blood, and obviously not in the bony skeleton, the connective tissue, the fat or the skin, and having observed in our experiments that the use of cocaine as a local anesthetic prevented shock from trauma of the area involved and that spinal anesthesia prevented shock completely as the result of trauma of a large field, I WAS CONVINCED THAT, IN SHOCK, NERVE IMPULSES PASS FROM THE FIELD OF TRAUMA AND ENTER THE VAST NETWORK OF NERVE CELLS AND FIBERS, THEREBY AFFECTING PROFOUNDLY THE BRAIN AND ALL THE NERVOUS TISSUE." Page 29.

"THE ORIGINAL BRAIN CELL STUDIES LED TO A CONSIDERATION OF THE PRINCIPAL REASON FOR THE VARIATIONS IN THE DISCHARGE OF ENERGY WHEN DIFFERENT PARTS OF THE BODY ARE INJURED — a consideration which led to an investigation of man's phylogeny in its relation to medical problems. Our first conclusions were expressed in the Ether Day Address delivered at the Massachusetts General Hospital on October 15, 1910. The scope of this thesis is well expressed by the following quotations:

"'When a barefoot boy steps on a sharp stone there is *an immediate discharge of nervous energy in his effort to escape from the wounding stone*. This is not a voluntary act. It is not due to his own personal experience, i.e., his ontogeny, but is due to the experience of his progenitors during *the vast periods of time required for the evolution of the species to which he belongs*, i.e., his phylogeny. THE WOUNDING STONE MADE AN IMPRESSION UPON THE NERVE RECEPTORS IN THE FOOT SIMILAR TO THE INNUMERABLE INJURIES WHICH GAVE ORIGIN TO THIS NERVE MECHANISM ITSELF during the boy's vast phylogenetic or ancestral experience. The stone supplied the phylogenetic association, AND THE APPROPRIATE DISCHARGE OF NERVOUS ENERGY AUTOMATICALLY FOLLOWED. If the sole of the foot be repeatedly bruised or crushed by the stone, shock may be produced. IF THE STONE BE ONLY LIGHTLY APPLIED, THEN THERE IS ALSO A DISCHARGE OF NERVOUS ENERGY FROM THE SENSATION OF TICKLING. The body has had implanted within it in a similar manner other mechanisms of ancestral or phylogenetic origin *whose purpose is the discharge of nervous energy for the good of the individual*.

"The brain cells have existed during eons of time and amid the vicissitudes of change with perhaps less alteration than the crust of the earth. Whether lodged in man or in the lower animals, they are related to AND OBEY THE SAME GENERAL BIOLOGICAL LAWS, thus binding them, that is, ourselves, to the entire past, and perform their function on the law of phylogenetic association.

"SO LONG HAVE WE DIRECTED OUR ATTENTION UPON TUMORS, INFECTIONS AND INJURIES THAT WE HAVE NOT SUFFICIENTLY CONSIDERED THE VITAL FORCE ITSELF. WE HAVE VIEWED EACH ANATOMICAL AND PATHOLOGIC PART AS AN ENTITY, AND MAN AS AN ISOLATED PHENOMENON IN NATURE. MAY WE NOT FIND IN THE LAW OF ADAPTATION UNDER NATURAL SELECTION, AND THE LAW OF PHYLOGENETIC ASSOCIATION, THE MASTER KEY THAT WILL OPEN TO US THE EXPLANATION OF MANY OF THE PATHOLOGIC PHENOMENA AS THEY HAVE ALREADY EXPLAINED MANY NORMAL PHENOMENA?"

Page 30.

"Our experiments had thus led us to the conception that the fact that part of the body or tissue is *more richly supplied with nerves*, and hence when excessively stimulated by injury produces physiologic exhaustion and morphologic changes IN THE MILLIONS OF CELLS OF THE BRAIN, may be interpreted as due to phylogenetic or racial experience in the adaptation of animals by evolution.

"Hence is it that injury of the hands, the feet, the brain and the spinal cord, the outer skin, the nerve trunks, the abdominal area, the sympathetic system, *causes a greater and more rapid loss of vital energy* than an equal injury of the fat, connective tissue, bones or joints. Stimulation or depression of the skin of that part of the body which through phylogeny has more often suffered injury, such as on the soles of the feet, the palms of the hands, the abdomen, neck and face, causes more injurious impulses and IMPRESSIONS OF GREATER INTENSITY TO BE PASSED ON TO THE BRAIN AND NERVOUS SYSTEM than are passed on after equal injury of the back, the back of the thighs, the arms, that is, of those portions of the body which have been less exposed and more protected through our phylogenetic experience."

Pages 30-31.

"THESE STUDIES LED TO THE CONCEPTION THAT THERE IS IN THE ORGANISM AN ENERGY-CONTROLLING OR KINETIC SYSTEM, viz., the brain, the liver, the thyroid gland and the adrenal-sympathetic system, which collaborate in the transformation of potential into kinetic energy to effect adaptative responses — muscular action, emotional excitation, fever, etc. In spite of our array of facts, however, we still were unable to formulate any hypothesis that would explain the significant role of the liver. Yet if our cytologic researches were of value, the rule of the liver must be identified, for in our studies changes in the cells of the liver *appeared equally and consistently with the changes in the cells of the brain and the cells of the adrenal glands.*"

Pages 33-34.

"An acid colloid and an alkaline colloid separated by a semi-permeable membrane, a dielectric membrane, constitute a concentration cell, within

which an electric potential exists between the positive and the negative poles. ACCORDING TO THIS CONCEPTION THE CELLS OF THE ORGANISM ARE ELECTRIC CELLS IN WHICH THE COMPARATIVELY ACID NUCLEUS CONSTITUTES THE POSITIVE POLE AND THE COMPARATIVELY ALKALINE CYTOPLASM THE NEGATIVE POLE. On this basis, therefore, we began to consider the organism as a bipolar mechanism and to direct our researches into the field of bio-physics.

"According to our cytologic findings, the maintenance of the acid-alkali balance between the nucleus and the cytoplasm of the cells—the electric potential—is essential to life and furnishes the immediate driving energy of the *living process itself. Its reduction to zero or equilibrium is death.*

"It remained, however, to discover HOW THIS VITAL ELECTRIC POTENTIAL OF THE CELLS IS MAINTAINED. We assumed that the electric potential is mainly due to oxidation and that, in turn, THE ELECTRIC POTENTIAL WITHIN THE CELL GOVERNS OXIDATION. THIS ASSUMPTION LED US TO ABANDON PHYSIOLOGICAL, CHEMICAL AND MORPHOLOGICAL METHODS OF ATTACK UPON OUR PROBLEM AND TO TURN TO PHYSICS in the hope that, by the application of the principles of physics, *we might identify the physical laws and forces in accordance with which the organism is constructed and operated.*"

Pages 34-35.

"Our histological studies had indicated that in the normal state the lipoid films surrounding the nucleus and cytoplasm offer a normal resistance to the passage of ions, that in exhaustion this resistance is lowered, and that this specific resistance disappears at death. If these inferences were correct, then the changes indicated by the microscope could be more accurately identified BY MEASUREMENTS OF THE ELECTRIC CONDUCTIVITY, CAPACITY AND POTENTIAL OF THE TISSUES. Such measurements were made and the findings supported this assumption."

Pages 36-37.

"If we were justified in our further assumption THAT THE ELECTRIC POTENTIAL WITHIN THE CELLS IS MAINTAINED BY OXIDATION, then variations in oxidation must accompany variations in activity AND THESE VARIATIONS IN OXIDATION WOULD BE MANIFESTED BY VARIATIONS IN TEMPERATURE. This assumption was supported by experimental research."

Page 37.

"Our findings then were critically examined and correlated in the hope of being able to propose a theory which *would bridge the gap between the living and the non-living* and suggest a physical line of ascent from the atom to man. THE PHYSICAL CONSTANTS OF TEMPERATURE, electric conductivity, electric capacity and electric potential could all be estimated during life, that is, during the operation of the causes of excitation, depression and death, thereby making it possible to glimpse the transformation of biology and medicine into exact sciences."

Page 38.

"During the war the most outstanding physiologists and bio-chemists of Great Britain, the United States and France, Italy, and other countries were engaged in intensive researches in their home universities, and many of them studied the problem of shock, exhaustion and restoration in the hospi-

tals of France. Every opportunity was afforded to them in their search FOR THE NATURE OF THE ENERGY THAT OPERATES THE MECHANISM DURING THE NORMAL STATE AND IS DEPRESSED AND LOST IN SHOCK, EXHAUSTION AND DEATH. The physiologists and the biochemists of the universities during the war and in the seventeen years following it WERE APPARENTLY AS FAR FROM A SOLUTION OF WHAT CAUSED THE DEATH OF WILLIAM LYNDMAN IN 1887, AND OF MILLIONS OF OTHER YOUNG LYNDMANS IN THE WORLD WAR, AS THEY WERE IN 1914. It seemed, therefore, perfectly apparent *that the physiological and biochemical method of attack had failed to solve this crucial problem, and that physiological and biochemical methods of approach were inadequate as a mode of attack. Classical physiology had failed.*" Page 40.

"In the war our principle of nerve blocking as a means of preventing shock was settled beyond a question by the use of spinal anesthesia for amputations of the leg or the thigh. Even hip joint amputations under spinal anesthesia were wholly free from shock." Page 41.

"Any theory as to the nature of protoplasm must identify the primary factors in the genesis of protoplasm. It must account for the universal phenomena of living processes from the simplest to the most complex forms. IT MUST IDENTIFY THE UNIVERSAL ENERGY THAT CONSTRUCTS AND OPERATES PROTOPLASM. IT MUST IDENTIFY A UNIFORM PATTERN FOR THE TRANSFORMATION AND UTILIZATION OF ENERGY IN PROTOPLASM. It must account for the necessity for such ever-present characteristics as the acid-alkali balance, the semi-permeable membranes, the omnipresent electrolytes. It must show why continuous oxidation is necessary. It must show the mechanism of stimulation and of specific response to stimulation. IT MUST IDENTIFY THE MECHANISM BY WHICH REASON, IMAGINATION AND MEMORY OPERATE. IT MUST ACCOUNT FOR REPRODUCTION.

"The central fact regarding living organisms is that they are transformers of energy and that they must be operated by means of one or more of the following five forms of energy: (1) heat energy, (2) mechanical energy, (3) chemical energy, (4) radiant energy, (5) electric energy.

"It is obvious that the organism of a rabbit, for example, is not operated by heat or by mechanical energy alone. Since the atomic and molecular energy that characterize organic compounds is derived from radiant and electric energy, it follows that the probable organizing and driving force of living organisms is radiant and electrical energy, although chemical energy plays a part. Therefore, plants and animals must meet the following requirements:

"1. Differences of potential and the resultant electrical phenomena must be demonstrable throughout the organism as a whole and in its component parts — the cells.

"2. The application of electricity to the muscles or glands, or to their nerve supply, must cause them to perform their natural functions.

"3. The materials of which animals are constructed must be specifically adapted to radiant and electrical processes.

"4. In structure and function the unit cells which drive the organism must be adapted to generate and to release radiation and electricity.

"5. It must be possible to interpret the normal and the pathological phenomena of man and animals in terms of radiant and electric energy.

"6. It must be possible to identify the mechanism by which oxidation generates radiation and electricity.

"DEFINITION OF TERMS

"Properly to understand the application of PHYSICAL CONSTANTS to the human mechanism it is necessary to have clearly in mind the electrical significance of certain physical terms such as potential, capacity and conductivity. In simplest terms, electric potential *means the amount of electricity which is available for use or work in the part of a mechanism which is referred to.* It is measured by taking some arbitrary point or part as a zero point and comparing the difference of potential between that arbitrary point and the part of the mechanism the potential of which is to be determined. It is necessary, of course, that these parts be in electric connection with each other. This potential difference is generally designated by the abbreviation P.D., which will be generally used throughout this volume. In commercial mechanisms THE GROUND IS GENERALLY SELECTED AS THE ARBITRARY ZERO POINT. In our measurements of potentials in different parts of the living mechanism we usually selected the fascia immediately beneath the skin as the arbitrary zero point.

"The ability of a tissue or of a chemical system to conduct an electric current from a point higher to a point of lower potential is called its electric conductivity. The ability of a substance or of a chemical system to store electricity is called its electric capacity." Pages 46-47-48.

"Proteins hold active nitrogen in bonds from which it is released by electric forces thus producing the radiations which we postulate are the primary source of living energy." Page 48.

"The animal organism as a whole is enmeshed in a network of highly specialized electric conductors — namely, the nervous system. In its physical composition, therefore, the body is not only highly adapted to electrical processes, but its constituents in their interrelations within the organism COULD NOT BE OF ANY CONCEIVABLE VALUE IN A MECHANISM OPERATED BY ANY OTHER FORM OF ENERGY.

"The mechanism by which oxidation within the protoplasm of the cell generates the electric charges that operate the cell and the organism we postulate is due to the short wave radiation generated and emitted by oxidation within protoplasm. According to this conception this short wave radiation knocks off electrons. These moving electrons charge up the intricate network of the nervous system as well as the infinitely thin membranes that separate the various units of structure and the network within the cells." Pages 48-49.

"What is oxidized? Is it sugar? Is it glycogen? Is it a higher hydrocarbon, a fat, a lipid? Is it an alcohol? It is generally held that the adaptive energy of the organism is obtained exclusively from the oxidation of one or more of these carbon compounds, and disregarding the energy of the nitrogen compounds, the following question arises: At what point in the cell and in what manner is the carbon compound oxidized?

"We know that the oxidation *must be initiated and controlled by electric energy, for electric stimulation initiates and controls oxidation. A nerve current may be regarded as an electric current.* But a nerve current—an electric current—causes no oxidation of any carbon *outside* the organism. It may be argued, however, **THAT AT THE POINT OF IMPACT, THE NERVE CURRENT MAY BE CONVERTED INTO HEAT** of sufficient intensity to cause oxidation of the carbon compound.

"Let us suppose that there is a carbon compound, say on the surface of the membrane of a cell, which, when subjected to stimulation at the point of nerve, hence of heat impact, would cause a change in the rate of oxidation, and that this change in the rate of oxidation would cause a change in function. What would prevent uncontrolled spreading of the oxidation?

"If an electric charge is required to alter the rate of oxidation, then the continuous oxidation in unicellular as well as in higher organisms must be caused by electric strain, and this strain must be within the cell. Why does not this strain cause the burning of all the carbon compounds in the cell? Why doesn't the cell die?

"How can the sun's rays falling on the retina cause oxidation of a carbon compound when there is no such delicately poised compound in the non-living compounds of carbon? If there is any such delicately poised carbon compound, it is *as yet unknown*.

"That oxidation is the final and only process in the burning of a tallow candle, in a combustion engine, in the burning of coal and wood, is clear, and it may be said that the oxidation within the cells of the organism is analogous to oxidation within the cylinders of the internal combustion engine, since in such a mechanism the vaporized gasoline is ignited by an electric spark. *This spark, however, does not take part in ordinary oxidation* but indicates that oxidation is used in the process. It is an explosion that occurs. Because oxygen is consumed in the *living* processes in animals, it does not follow that molecular oxidation in the ordinary sense occurs at all. For example, it is now clear that the consumption of oxygen as the result of a muscle contraction does not occur in the actual contraction itself, but rather in the process of building up the compound that furnishes the energy that executes the contraction.

"The spread, the finesse, the speed of the simple oxidation of carbon compounds is *clearly not adequate to explain many processes.* Simple oxidation of carbon compounds is *too crude a tool to account for the infinitely delicate processes of the special senses, the mind, etc.* These considerations led us to examine more closely the fundamental phenomena of metabolism."

"Sir Frederick Mott clearly recognizes that there are discrete points or ultramicroscopic units within protoplasm in which oxidation takes place. That is to say, oxidation does not take place within the mass of the cell but within definite units. We assume that these units can be considered to be the furnaces which supply the energy of the organism.

"How could one suppose the CLUMSY oxidation of a carbon compound to be the *precise method used for the production of such manifold phenomena as those exhibited* in the processes of metabolism? How would that account for THE INFINITE DELICACY of response to stimulation? How could that account for the production of ammonia? Why does not oxygenated Ringer's solution with glucose *satisfy the brain*? It is clear that oxidation of carbohydrates *does not offer a complete explanation of vital phenomena.*"

Pages 61-62.

"As already stated in Chapter I, we made studies of long wave radiation, that is, studies of the heat changes *in the brains and livers of warm-blooded animals* and determined the variations under many conditions. We measured the temperature of *the brains* of animals in shock, during and after hemorrhage, under the influence of anesthetics and narcotics, after the excision of the thyroid and adrenal glands and of the liver, in depression and death from insomnia; AND WE FOUND THAT THESE VARIATIONS IN TEMPERATURE BORE A DIRECT RELATION TO THE STRUCTURE AND STAINABILITY OF THE CELLS AND TO THE INCREASE AND DECREASE IN THE ENERGY AND FUNCTION OF THE BRAIN.

"IT WAS APPARENT THAT THE VARIATIONS IN THAT FORM OF RADIANT ENERGY WHICH WE CALL HEAT FOLLOWED CLOSELY THE VARIATIONS IN ELECTRIC CONDUCTIVITY, ELECTRIC CAPACITY AND ELECTRIC POTENTIAL OBSERVED UNDER LIKE CONDITIONS, THUS INDICATING THE FUNDAMENTAL NATURE OF THESE ELECTRIC AND RADIANT FORCES."

Page 78.

"Such a view *would account for the universality of the electrical properties in protoplasm already described. It would elucidate the only physiological fact that has stood the test of time in the science of physiology — the one fact that has never been successfully contested, namely, that electricity when properly applied to nerves, tissues and organs can stimulate them to perform the identical work performed by those nerves, tissues and organs in nature.* Electricity outside of the living and electricity generated within the living organism are identical.

"It is clear that radiation produces the electric current, which operates *adaptively the organism as a whole, producing memory, reason, imagination, emotion, the special senses, secretions, muscular action, the response to infection, normal growth and the growth of benign tumors and of cancers, all of which are governed adaptively by the electric changes that are generated by the short wave of ionizing radiation in protoplasm.*"

Page 80.

"One would expect that when such organs as the liver and kidneys and brain are seriously degenerated, they would emit subnormal short wave radiation. On the other hand, a tissue that is growing rapidly is doing so

by virtue of a corresponding abundance of the short wave radiations which are required to ionize atoms and to build the organic compounds by which growth is effected. Therefore, we would expect that the apex of a root or a bud or a fertilized ovum or a growing fetus or a hyperplastic thyroid or a cancer would exhibit correspondingly higher percentages of short wave radiation *as well as increased electric conductivity, electric capacity and electric potential.*" Page 81.

"Regarding this point, one could argue with equal logic that because everywhere in the world, oil and gasoline and wood are being burned, since oxidation and heat are common phenomena, serving any or no purpose, then in the case of organic oxidation, the combustion is a mere by-product and has no relation to the pull of the load. One might with equal logic say that the burning of the coal in the fire box and the by-product, steam, have no relation to the work of the locomotive, or that although an electric battery exhibits electricity, the electricity is a by-product because almost all matter exhibits electrical phenomena, and indeed is electrical in nature; or that because sunshine is everywhere and has always existed, or because water is everywhere, even where plants and animal life do not exist, sunshine and rainfall have no relation to the existence and growth of protoplasm.

"The choice lies between accounting for the phenomena of protoplasm by the application of the laws of physics and chemistry, *or accounting for these phenomena as being due to causes unknown.*

"On the basis of the foregoing consideration, one would expect to find that *when an organ is so impaired by disease or injury that it can no longer perform its function*, the loss of function must be due to a corresponding decrease of the short wave radiation. An interesting experiment *indicates the validity of this assumption.* When the organs of the body are oxidized by the method described in Chapter 26, visible light is produced, the radiations varying from the short infra-red to the ultraviolet. If the muscles, the kidneys, the liver, and the heart are performing their functions within the normal range, *while the function of the brain is so depressed that the conscious state is lost*, one would expect to find that the radiations generated by the oxidation of muscles, the liver, the kidneys, and heart would be within the normal range, while very little or no light would be produced by the oxidation of the brain. We found that this expectation *was realized* in the case of *a human being* who died after five days of unconsciousness, due to age and acute disease, while all of the other organs functioned normally."

Pages 81-82.

"The helpless, passive state of the muscles of the body showed that THE ELECTRIC POTENTIAL OF THE BRAIN had fallen to near the zero point, HENCE THE MUSCLES DID NOT RECEIVE FROM THE BRAIN ALONG THE NERVES THE RADIO-ELECTRIC ACTION CURRENT WHICH FIRES THE NERVE END-PLATES OF THE MUSCLES — an essential factor in the maintenance of muscle tone and the performance of muscular action."

Page 83.

"In the first period following fertilization, the energy of the newly formed organism is used solely for growth AND CELL DIVISION. At a certain time

thereafter differentiation of the cells and organs for the performance of specific functions begins to appear. AS ENERGY IS UTILIZED INCREASINGLY in proportion to the development of these specific functions in the muscles, glands, nerve tissue, etc., growth is by so much diminished, until finally a balance is reached when there is no further growth and all the energy of the organism is expended in function and repair. This applies to normal tissue." Page 84.

"The three physical CONSTANTS, the electric conductivity, electric capacity, and electric potential of cells, of organs, and of organism are a measure of their power of growth, of function, and of resistance to infection, etc. At death the electric potential is reduced to zero and the anatomical and the histological components of the animal are resolved into the simple elements of the earth and the air." Page 89.

"From the foregoing it is evident that the gross, the ultra-microscopic, the molecular, the atomic and the electron configuration of every living thing may be identified by physical CONSTANTS. Every movement of ions across the countless billions of semi-permeable membranes, which governs the chemical activities of cells, IS IN ACCORDANCE with the Nernst Law. The rule of surface tension which fundamentally governs the action of cells is expressed by the mathematical equations of Einstein. The electric conductivity, electric capacity, and electrical potential of the living organism which provide an accurate measurement of the activity of cells and organs ARE EXPRESSED BY THE SAME MATHEMATICAL FORMULAE AS IN NON-LIVING SYSTEMS." Page 91.

"The great importance of the electrical control of the body processes is demonstrated by the infinite network of nerves—wires—in every reactive part of the organism." Page 95.

"Since in a bipolar mechanism, the electric current must flow from areas of higher to areas of lower potential, it is necessary to cite such facts as may tend to support the conception THAT THE CELLS OF THE BRAIN ARE THE PRINCIPAL SOURCE OF THE ELECTRIC ENERGY THAT COORDINATES THE BODY and to show how the direction of the fabricated current is established." Page 99.

"The entire mass of the brain that constitutes the actual mechanism of the 'mind' consists roughly of two parts—the gray matter and the white matter. It is estimated that in the cerebral cortex there are 1,200 million protoplasmic units of energy-transformation, or cells. The white matter of the brain contains no cells. The white matter of the brain is not a dynamo, it is a matrix on which are recorded the patterns of action.

"It is in this infinitely delicate white matter, or matrix of the brain that physical conductance paths of microscopic dimensions are established by electric charges as they pass through the matrix. These molecular paths of conductance become facilitated WITH THE PASSAGE OF CERTAIN SPECIFIC ELECTRIC CURRENTS WHICH ARE GENERATED IN THE CELLS OF THE GRAY MATTER OF THE BRAIN.

"Could this tangled network of facilitated pathways in the matrix of the white matter be detected by a powerful microscope, *a single brain might exhibit as great a number of 'hook-ups' as all the telephone wires, exchanges, and receivers in existence.* Could one look with an eye of sufficient magnification into the recording matrix of the brain of an individual, one would there read in the configuration of its multitude of action patterns, *every act, every experience, every thought, every desire, every ideal of that individual from the moment of his birth.* This infinitely intricate and interlacing network of microscopic pathways of communication we shall designate the patterns of action and memory. In every conscious moment new pathways are added, old pathways become more facilitated, and new 'hook-ups' are effected.

Since the matrix has no other function to perform, its function is *changeless.* Its structure is infinitely adapted to the creation of facilitated pathways. But within itself this plastic and passive matrix *on which the special senses have caused to be etched this network of conducting pathways of action,* furnishes no power whereby it may operate its intricate system. It is in the cells of the gray matter of the brain **THAT THE ENERGY REQUIRED TO OPERATE THIS SYSTEM IS GENERATED."** Pages 103-104.

"Since the only source of energy of animals is the energy which the animal captured in the form of food from the plant, and since the energy held in the plant was captured from solar radiance and from the nitro group in the soil, the energy that operates the brain in fabricating memory, reason, imagination, in expressing the emotions, in fighting and escaping, is not like — but is in fact — the identical radiance which is released by detonation in the radiogens of the protoplasm of the brain cells.

"Since in common with the other cells of the organism, the brain cells are electrochemical radiating mechanisms; *since their function is an energy function;* since the structure and the function of the brain depend on electrochemical processes and radiation; then, training and education must be purely physical in nature.

"Our studies of brain tissue, many of which have already been cited, may be summarized as follows: *In the normal range of health there is in the brain within definite limits a constant range of temperature, electric conductivity, electric capacity and electric potential. Under excitation of the brain, these constants increase; in depressed states of vitality, these constants suffer a decline; at death, these constants reach the level of non-living material. The dynamics of the brain, therefore, seem to parallel the dynamics of the energy processes of non-living mechanisms — such as the internal combustion engine or an electric battery or the action of the photo-electric cell as exhibited by the eye.*" Page 106.

"Perhaps enough evidence has been cited to show that the brain is an infinitely delicate energy-transformer and receiver which responds to light waves, to sound waves, and to changes in chemical and physical stimuli, such as taste and smell, touch and pressure. *It is this exquisitely sensitive mechanism that is activated by every experience of life from infancy to death.*" Page 108.

"It is the SPECIFIC electric currents that are generated in the brain cells that create the action patterns and activate them adaptively. The experiments by Gotch and Horsley, by Ferrier, and by others, show that electric stimulation of the motor centers of the cortex of the brain causes the muscles to perform the same work that electricity generated in the brain cells causes the muscles to perform. This is a well-established fact.

"When an electric current is directed through the brain in such a way as to pass through the fundus of the eye, light is seen. When an electric current is passed through the center of hearing in the brain, sound is heard. These are well-known facts, and the reasons are obvious, because the protoplasm constituting the cells of these centers generates electric currents which stimulate muscles and glands. Battery-made electricity is identical with protoplasm-made electricity. The muscle does not 'know' to which electricity it responds.

"There is no fundamental difference between muscular action, the sucking and breathing mechanism of the infant, the spontaneous running of a newly hatched quail, the closing of the Venus fly-trap, and the learning by the child that two and two equal four."

Page 115.

"IT IS AT ONCE CLEAR THAT THERE IS WITHIN THE ORGANISM AN ENERGY-CONTROLLING SYSTEM which is activated by the special senses primarily. Theoretically, this system would consist of the special senses, the brain, the adrenal-sympathetic system and the thyroid gland. This is the system that should be proven to be responsible for extracting the energy from the nitrogen and carbon compounds in the organic molecules of food and converting them into radiant and electric energy, WHICH IN TURN GOVERNS THE GROWTH, THE FUNCTION AND THE ACTIVITY OF THE ORGANISM. This *energy-controlling system*, like the internal combustion engine, converts the potential energy packed in the atoms of the organic compounds into the kinetic energy represented by radiation, electricity and their consequent MENTAL, EMOTIONAL, MUSCULAR, GLANDULAR AND GROWTH ACTIVITIES."

Page 122.

"In other words, the thyroid gland and the adrenal-sympathetic complex are the mechanisms that regulate the speed of the animal organism; that is, the thyroid gland and the adrenal-sympathetic complex are the chemical mechanisms that, by controlling the rate of oxidation, shift the spectrum to the short wave field, and the short of ionizing waves of the spectrum generate the electricity that operates this muscle or that muscle, this animal or that animal, at this speed or that speed. Therefore, the brain, being the greatest generator of radiant and electric energy, is endangered by the rapidly increased polarization in its infinite number of cells or batteries.

"In the animal battery as in the man-made battery, when as the result of continuous action the contra-electric current equals the primary current, then the electric circuit is inactive and dead; the electric potential within the circuit and within the cells co-incidentally falls to zero — and the animal is dead. Such a death is unique in that there is no struggle, there is only a continuous loss of energy, until the animal or man stops living as

inconspicuously as a battery fades to zero. Just as a battery runs down by virtue of polarization and is restored by opening the circuit, so in the case of the billions of brain cells that run down by virtue of polarization as the result of adequate stimulation of the senses, if the stimuli are reduced below the threshold of action, the nerve circuits are opened and depolarization occurs. This is sleep.

Page 126.

"This charge-up accordingly affects every tissue, every organ of the whole cerebro-spinal-adrenal-sympathetic system. Since the comprehensive nervous system controls all the rest of the body, the organ that governs the amount of the commanding short wave radiation commands the control of the organism."

Page 140.

"The infinitesimal release of radiant and electric energy in the retina of the eye and in the nerve endings which produce the sense of taste, touch and smell, as by a trigger action mediated by the brain, releases vast amounts of muscular energy, moving the animal in this way or that, at this speed or that. The oak requires no thyroid or adrenal gland because it needs only to grow and to maintain its vertical position. The power of command is conferred by the short wave radiance which, in turn, commands the chemical reactions which build up the nitrogen-group whose combustion generates the short wave-length. The process then becomes that of an automatic mechanism."

Pages 143-144.

"The commanding power of the brain is the result of the power of the short wave radiation which it generates. The short wave radiation is due especially to the combustion of proteins; the combustion of the proteins is facilitated by the thyroid and the adrenal hormones. The adrenal gland brings to protein something whose effect is like that of a fulminate. A fulminate is an agent that is exceedingly sensitive to physical disturbance, and when it is fired there is emitted short wave radiation, and a high temperature and great chemical activity are produced. Adrenalin behaves in that manner, as does thyroxin, but the latter is less sensitive. The brain, however, is an organ which requires a continuous stream of organic molecules from various sources to keep the 'pyre' renewed, which is the same as saying that the brain is forever hungry and is forever being fed."

Pages 150-151.

"Any theory competent to explain living processes in an animal organism MUST FIND A PLACE FOR THE CHARACTERISTIC FUNCTION OF EVERY ORGAN OF THE ORGANISM. Of course the obvious functions of the heart, lungs and the blood are not included in this discussion. But there are three organs, excisions of which overwhelmingly depress the organism and cause death, namely, the brain, the liver and the cortex of the adrenal gland. It is well, therefore, to consider the rules of these three organs in an organism which we assume is operated by electric and radiant energy. The rule of the brain is obvious but the rule of the liver and of the adrenal cortex are enshrouded in mystery."

Page 153.

"The mystical state of remission of consciousness, called sleep, clearly is related to the operation, OR RATHER TO THE CESSATION OF OPERA-

TION, OF THE IDENTICAL FORCES THAT GENERATE AND MAINTAIN THE CONSCIOUS STATE. The rhythms of sleep and consciousness are as definite as are the rhythms of batteries that become polarized and depolarized by the opening and closing of the circuit.

"The batteries that operate a doorbell depend for depolarization on the resting period of the bell. In an electric battery the current carries positive ions to the negative pole and negative ions to the positive pole. As such elements are deposited upon the opposite poles a contra-electric current is generated. The contra-electric current is reinforced by each added ion until finally the contra-electric current arising from the elements deposited by the direct current becomes equal to the direct current; and thus the circuit of the battery is in equilibrium or 'death.' The battery is polarized. If the circuit be broken before polarization is complete, then the ions being freed from the power of the current of the circuit rebound from the poles and travel back into the solution or to the station from which the current brought them, thus restoring the electric power of the battery.

"If the period of work, i.e., if the passage of electric current is short, as in a single heart-beat, then the degree of polarization is proportionately slight. The slight degree of polarization which results from a single heart beat requires a proportionately short time for depolarization or sleep, i.e., the pause in the heart cycle may be regarded as its period of sleep. *The heart, with its nerve mechanism*, takes normally from seventy to ninety naps a minute, and thus is kept depolarized or rested as it works.

"We may suppose that the nerve cells, which operate the respiratory mechanism become depolarized, or sleep, from sixteen to eighteen times per minute, and that thus the respiratory mechanism is kept depolarized or rested as it works. It would appear to be more than a mere analogy that such is the mechanism whereby prolonged consciousness unbroken by sleep leads to exhaustion and death.

"The salivary glands, the intestinal nerve-muscle mechanism, the digestive glands, etc., we may suppose have alternating periods of work and polarization, and of sleep and depolarization. Regarded superficially, the functions of respiration, of circulation, of digestion, carry on as if they never rested, never slept; but their sum total of short periods of sleep is relatively as long as the total period of sleep of *that part of the brain whose work creates consciousness*, and therefore spends no more time than other organs in sleep, but sleeps more continuously.

"As for the portion of the brain which governs conscious activity, the periods of work, and therefore of polarization of the cells that supply the electric power for consciousness, for emotion and for muscular action, are longer than the periods of work demanded by the heart, by the respiratory mechanism or by the digestive mechanism. Thus the option of evolution apparently has been to run the organism on long shifts or shorter ones.

"If the changes in the nerve cells seen in fatigue from various kinds of work and from prolonged enforced consciousness are identical in appearance; if these physical changes are restored only during sleep; and if the

degree of cell change varies with the amount of work done at a stretch without sleep, that is, with the amount of electric energy that has originated in or traversed a given cell, then it would require more time and deeper sleep to restore the electrical balance of the cell after prolonged heavy muscular exertion than after a day of restful quiet. And this is demonstrated by experience. It would appear that the degree of exhaustion equals the time of consciousness multiplied by its intensity." Pages 160-161.

"The only non-living energy mechanisms that have definite rhythms of activity and exhaustion are electric batteries. The locomotive, the internal combustion engine, the windmill, the waterfall do not exhibit such rhythms. Of man-made machines only electric mechanisms exhibit natural cycles of activity and rest.

"As to the mechanism of animals, there are certain phenomena that may be used to test the *validity* of such a conception of consciousness and sleep.

"First and most important is the energy — *the life force itself* — of the rabbit or of man. When a rabbit is kept awake, but given food and drink and physical and psychic repose excepting for the minimum required to keep it awake, the rabbit, like every other animal, inevitably dies, usually on the fourth or fifth day. The behavior of such a rabbit is paralleled by the 'behavior' of a battery; this is, the rabbit and the battery gradually 'run down' and finally come to a standstill — to equilibrium or death. The death of the rabbit from loss of sleep is unique. Life simply ceases; there is no gasp, no struggle. *The mechanism of living has run down* and has reached equilibrium. The closest attention is required to note the exact moment of the cessation of consciousness and life.

"In a sick or an injured rabbit certain organs are changed more than other organs, yet the life of the other organs ends before they are ready, that is, before they of themselves have reached a state of equilibrium; but in death from loss of sleep, *every organ* reaches equilibrium at the same time. *Energy has departed; the circuit is dead.*

"Moreover, in death from insomnia the electric potential, electric capacity, and electric conductivity are all decreased at the same time and the potential reaches zero. The reason is clear, for the radiant and electric energy created and maintained the electric potential and the electric capacity in the living." Pages 162-163.

"Sleep — depolarization, being a negative phase, cannot be compelled. Consciousness — polarization, being a positive phase, can be compelled, even unto death. *Normal man cannot sleep unto death; he can sleep only to restoration — no more.*" Page 164.

"Depression and death follow asphyxia, hemorrhage, excessive cold, protracted insomnia, excessive doses of anesthetics, narcotics, or cyanides. THE EXTENT OF THE DEPRESSION PRODUCED BY EACH OF THESE CAN BE ESTIMATED ACCURATELY BY MEASUREMENT OF THE ELECTRICAL POTENTIAL. ELECTRICITY IS THE ENERGY THAT DRIVES THE ORGANISM. The electric potential is an important factor in the distribution of electric energy in protoplasm. THE SYMPTOMS OF EXCITATION, DE-

PRESSION AND DEATH ARE THE EXTERNAL MANIFESTATION OF THE CHANGES IN THE ELECTRIC POTENTIAL OF THE ORGANISM."

Page 167.

"AUTOPSIES SHOW NO SPECIFIC CHANGES AND THE PATHOLOGIST IN REALITY DOES LITTLE MORE THAN TO SAY THAT THE PATIENT IS DEAD, THAT IS, HE GIVES NO INFORMATION WHATSOEVER AS TO THE MECHANISM THAT HAS LED TO THE CHANGES IN THE PROTOPLASM OF THE CELLS THAT ARE SEEN AT DEATH. The protoplasmic changes *seen under the microscope* are analogous to the condition of *the body as a whole* after death. The microscopic picture is that of a change in architecture, BUT IT GIVES NO INFORMATION AS TO THE FORCES THAT CAUSED THE CHANGE. THE IMPORTANT THING FOR US TO KNOW IS THE NATURE OF THE PHYSICAL FORCES AND THE PHYSICAL CONDITIONS WHICH UNDERLIE THE CHANGES THAT ARE OBSERVED BY THE PATHOLOGIST AFTER DEATH.

"IT IS OF VERY LITTLE USE FOR ANYONE TO SAY A PATIENT IS DEAD; AND IT IS NOT OF MUCH MORE USE FOR THE PATHOLOGIST TO SAY THAT THE CELLS ARE DEAD. It would be a very great help to us, however, if we were able to discover THE FORCES THAT HAVE GONE WRONG, TO DISCOVER THE FORCES THAT HAVE DESTROYED THE CELL, and to realize that in the normal man as in the soldier exhausted by emotion, exertion, injury and infection, any one of these influences may change electric potential, oxidation and reduction, and the concentration of the electrolytes inside and outside the cells and also the protein and lipid molecules within the cell."

Page 168.

"We shall also interpret IN TERMS OF ELECTRIC POTENTIAL the results of physical injury, infection, stimulants, asphyxia, anesthetics, narcotics, and hemorrhage. IN OTHER WORDS, WE SHALL TEST IN THE CLINIC THE SCIENCE OF RADIO-ELECTRIC PATHOLOGY." Page 168.

"When one considers the total span of life from the moment of fertilization of the ovum until death in old age, IT IS OBSERVED THAT THERE IS A STEADY DECREASE IN THE RATE OF PRODUCTION OF THE RADIANT AND ELECTRIC ENERGY BY WHICH GROWTH AND FUNCTION ARE ACCOMPLISHED. From the time of birth on through childhood and through adolescence and maturity, the thyroid-adrenal-sympathetic system is extremely active, as may be illustrated by the fact, already noted, that the thyroid gland becomes enlarged, especially during adolescence, the period of rapid growth and development. LATER IN LIFE, IN NORMAL INDIVIDUALS, ACTIVITY IS MAINTAINED AT A LOWER AND MORE CONSTANT LEVEL."

Page 175.

"It is clear that IN THE SECOND HALF OF LIFE THE ELECTRIC POTENTIAL OF THE ELDERLY PATIENT AS A WHOLE OR OF THIS OR THAT ORGAN HAS BEEN VERY MUCH REDUCED and that by so much the margin of safety has been dangerously diminished." Page 177.

"From the considerations presented in the foregoing chapters, it becomes apparent that the characteristics which differentiate the classes of animals

and plants DEPEND UPON THE LEVEL OF ENERGY AND UPON THE MANNER IN WHICH THAT ENERGY IS UTILIZED." Page 179.

"THE LEVEL OF ENERGY EXPENDITURE, THEREFORE, BECOMES ONE OF THE MEASURES OF THE LEVEL OF CIVILIZATION."

Page 180.

"In the inaugural phase of muscular exertion, physical injury, emotion and infection of such severity AS FINALLY TO CAUSE DEPRESSION AND POSSIBLY DEATH, oxidation, radiation and electric potential are all increased. Eventually, however, the factors of safety are used up and THE STAGE OF DEPRESSION ENSUES.

"Especially in hemorrhage and asphyxia, this primary increase in oxidation, radiant AND ELECTRIC POTENTIAL IS DUE TO THE ANAEROBIC OXIDATION INDUCED BY ADRENALIN, the output of which is increased to meet a biologic emergency.

"In Chapter 8 we have presented evidence that *electric potential is a true and accurate measure of the power of function and of the maintenance of the living state.*"

Page 184.

"The soldier in exhaustion was able to see danger but lacked the normal muscular power to escape from it; his temperature must be subnormal, but he lacked the power to create heat; he understood words but lacked the normal power of response. In other words, HE WAS UNABLE TO GENERATE RADIANT AND ELECTRIC ENERGY ADAPTIVELY DESPITE THE FACT THAT HIS VITAL ORGANS WERE ANATOMICALLY INTACT."

Pages 184-185.

"After the operation, vomiting, cold, dehydration occurred. There was little nursing care. The pulse mounted. Respiration, pulse and temperature increased. The patient was restless. Rales were heard at the base of the lungs. Little urine was secreted. The pulse became increasingly rapid and feeble. On the second or third day the patient might die with pneumonia, with suppression of urine, with a failing heart and delirium. Had the soldier not been in battle, he would have been in vigorous health. *What was it that was lost?* THE COMMON DENOMINATOR was the result of depression of oxidation, depression of radiation, AND DEPRESSION OF THE ELECTRIC POTENTIAL IN THE DOMINANT ORGANS.

"EXHAUSTION MAY FOLLOW EMOTIONAL AS WELL AS PHYSICAL STRESS SINCE THE EXPRESSION OF THE EMOTIONS INVOLVES AN INCREASED ACTIVITY OF THE ENERGY SYSTEM, THAT IS, OF THE NERVOUS SYSTEM and of the thyroid-adrenal-sympathetic complex."

Page 185.

"ALL OF THIS RESULTS IN A DEPRESSION OF THE RADIANT AND ELECTRIC FORCES THAT GOVERN THE ORGANISM. As an analogy one may consider what would happen to a motor car standing still with its engine running at top speed and the clutch released."

Page 186.

"The wounded soldier is the victim of exhaustion from intense physical exertion, intense emotion and physical trauma. Since his radiant AND ELEC-

TRIC ENERGY HAVE BEEN DIMINISHED IT FOLLOWS THAT HE LACKS THE NORMAL POWER OF RESPONSE TO INFECTION. In fact, all of his organs are abnormally predisposed to loss of function, and at death the body is well started on its way to dissolution as compared with the body of an equally vigorous soldier who is killed instantly. THE UNDERLYING FACTOR IN THE LOSS OF THE DEFENSE OF THE TISSUES AND ORGANS AGAINST INFECTION IS THE DEPRESSION OF THE ELECTRIC POTENTIAL IN THE TISSUES AND ORGANS." Page 186.

"Are any other organs stimulated by fear except those that can or do assist in making a defensive struggle? There are none. On the other hand, if an animal could dispense with his bulky digestive organs, the functions of which are suspended by fear, if he could, so to speak, clear his decks for action, it would be to his advantage. Although the versatility of natural selection apparently could devise no means of affording this advantage, IT NEVERTHELESS DID SHUT OFF THE NERVOUS CURRENT AND THUS CONSERVATED THE RADIANT AND ELECTRIC ENERGY WHICH IS ORDINARILY CONSUMED BY THESE NON-COMBATANTS IN THE PERFORMANCE OF THEIR FUNCTIONS."

"IN ACCORDANCE WITH THIS CONCEPTION, WORRY IS INTERRUPTED STIMULATION. WORRY IS A STATE OF ALTERNATION BETWEEN HOPE AND FEAR. IT IS AN ALTERNATING STIMULATION AND DEPRESSION OF OXIDATION, RADIATION, AND ELECTRIC POTENTIAL. IT IS A SLOW FADING OUT OF THE MOLECULAR FURNACES, OR RADIOGENS, WITHIN PROTOPLASM." Page 189.

"As has already been stated, A CELL CAN FUNCTION ONLY WHEN UNDER A CERTAIN ELECTRICAL STRAIN, AND THIS ELECTRICAL STRAIN is constantly being regenerated by the radiant energy produced by oxidation; in other words, OXIDATION, RADIATION, AND ELECTRIC POTENTIAL GO HAND IN HAND. WHATEVER INTERFERES WITH OXIDATION INTERFERES WITH RADIATION AND ITS CONSEQUENT ELECTRIC POTENTIAL. IT IS IMPOSSIBLE TO INTERFERE WITH THE ELECTRIC POTENTIAL AND NOT WITH OXIDATION AND RADIATION BECAUSE IN THE PROTOPLASM OXIDATION, RADIATION AND ELECTRIC POTENTIAL ARE TIED TOGETHER AS A COORDINATED PHYSICAL PROCESS. Thus, each of the factors that affects the soldier disturbs oxidation and radiation AND THEREFORE ALTERS THE ELECTRIC POTENTIAL OF EVERY CELL OF HIS BODY; AND IF OXIDATION, RADIATION AND ELECTRIC POTENTIAL ARE ALTERED, THE CELL CANNOT MAINTAIN EVEN ITS OWN STRUCTURE." Page 189.

"WHEN A PATIENT IS TOO COLD, THE ACTIVITY OF THE PROTOPLASM OF EVERY CELL OF HIS BODY IS DECREASED TEN PER CENT FOR EACH DEGREE CENTIGRADE OF LOSS OF BODY TEMPERATURE. WHEN A PATIENT HAS A FEVER, FOR EACH DEGREE CENTIGRADE OF RISE IN TEMPERATURE THERE IS A RISE OF TEN PER CENT IN THE ACTIVITY OF EVERY CELL OF THE BODY.

"When an individual is subjected to physical injury, to exertion, to infection, TO EMOTION, all his protoplasm is affected." Page 190.

"For many years we have been investigating the nature of anesthesia; have been endeavoring to determine *with what mechanism the anesthetic interferes*; to find out *why* under apparently the same degree of anesthesia one patient will die and another survive. In our earlier researches we thought we had found the answer when we discovered that certain changes in the brain cells, in the liver and in the adrenals, always followed prolonged inhalation anesthesia. LATER WE FOUND THAT THE TEMPERATURE OF THE BRAIN DECREASED STEADILY DURING ETHER ANESTHESIA INDICATING THAT THE OXIDATION AND ELECTRIC CONDUCTIVITY OF THE BRAIN WERE DECREASED. WE FOUND ALSO THAT THE ELECTRIC POTENTIAL OF THE BRAIN DECREASED IN ANESTHESIA."

Page 191.

"It is not only THE POTENTIAL OF THE BRAIN that is lowered by inhalation anesthesia, BUT ALSO THE POTENTIAL OF EVERY ORGAN AND TISSUE, and as has been stated, *when the potential of any organ or tissue reaches the zero point that organ or tissue is dead*. That is, the general anesthetic affects not only the brain but every organ and tissue of the body, REDUCING ITS ELECTRIC POTENTIAL AND ABOLISHING THE VITAL SHORT WAVE RADIATIONS.

"What then is an anesthetic? IT IS AN AGENT THAT IS CAPABLE OF INTERFERING WITH THE GENESIS OF BIO-ELECTRIC CURRENTS AND THE SHORT WAVE RADIATION REQUIRED FOR NORMAL ACTIVITY. A local anesthetic interferes with the short wave radiation in the part into which it is injected. Spinal anesthesia and splanchnic anesthesia INTERFERE WITH THE SHORT WAVE RADIATION FROM THE AFFECTED NERVES, WHICH MEANS THEIR POWER OF GENERATING AND TRANSMITTING NERVE IMPULSES TO THE RESPECTIVE ORGANS AND TISSUES."

Pages 191-192.

"Narcotics and poisons also affect every organ and tissue, REDUCING THE POTENTIAL AND ELECTRIC CONDUCTIVITY, usually within safe limits when the agent is a narcotic *but to zero — the death point, when the agent is a poison*.

"The same is true of stimulants insofar as the effect upon the whole organism is concerned, but the first effect of a stimulant is to increase the stainability of the cells of the brain, TO INCREASE ELECTRIC POTENTIAL, ELECTRIC CAPACITY AND ELECTRIC CONDUCTIVITY, to increase the percentage of radiation in the short wave field, THUS INCREASING THE RADIANT AND ELECTRIC ENERGY OF THE WHOLE BODY. THIS INCREASED ENERGY, HOWEVER, IS FOLLOWED BY A DEPRESSION WHICH IS MARKED BY DECREASED ELECTRIC CONDUCTIVITY, potential and capacity and *decreased differential stainability* of the brain cells, the amount of the resultant decrease bearing a direct relation to the degree of the primary increase in electric and radiant energy. THAT IS, STIMULATION IS FOLLOWED BY DEPRESSION."

Pages 193-194.

"Or suppose the patient has jaundice and the electric potential of the liver has been reduced to a low level as the result of the back pressure of bile.

We have known of the dangers of operating upon the patient with jaundice but for a long time did not appreciate THAT THE SOURCE OF THE DANGER WAS THE ANESTHETIC. Ether anesthesia would be given and in some instances the patient never became conscious. Death was attributed to the disease, *but what really happened was that the already lowered electric potential of the liver was reduced by the anesthetic AND THE VITAL RADIATIONS CEASED.* Long before the potential of *the brain was reduced* to the danger point, the liver was dead, and the brain cannot function without the liver.

"In an elderly patient the electric potential of all the organs is reduced and radiations are depressed. In such people one or another vital organ may have the lowest potential and its function fails first. We say that the patient died of failure of the liver, the kidney or the brain; HE REALLY DIED FROM THE ANESTHETIC.

"In an old person, THE RADIATIONS OF THE BRAIN MAY BE SO DEPRESSED that even a narcotic is dangerous. An elderly patient *may never become conscious after a dose of morphine* that would be entirely safe for a young and healthy subject.

"Anesthetics and narcotics are safe enough WHEN THE PROCESSES OF LIFE ARE NORMAL."
Pages 195-196.

"When in the course of an operation there is a hemorrhage, the patient may die, and we say *that the hemorrhage was the cause of death.* What really happens is that the hemorrhage SO LOWERS THE ELECTRIC POTENTIAL OF THE ORGANS AND TISSUES THAT THEY CANNOT BEAR THE FURTHER DEPRESSION DUE TO THE ANESTHETIC.

"It follows that before giving a general anesthetic it is essential to know something regarding the state of the protoplasm of the essential organs. If any of these organs have been affected by the disease WE KNOW THAT THE RADIANT CAPACITY HAS BEEN AFFECTED, THAT IS, THE EMISSION OF RADIATIONS AND THE ELECTRIC POTENTIAL HAVE BEEN REDUCED. In such a case, therefore, the use of a general anesthetic is contra-indicated. Local or splanchnic or spinal anesthesia should be used. Ether and chloroform should rarely be administered to a bad risk or an aged patient."
Pages 196-197.

"Later we learned that THE EXHAUSTION OF THE KINETIC SYSTEM IS EXPRESSED ALSO BY DECREASED ELECTRIC CONDUCTIVITY, ELECTRIC POTENTIAL AND ELECTRIC CAPACITY, AND RECENTLY WE HAVE FOUND THAT IN THE STATE OF LOWERED POTENTIAL, THE GENESIS OF SHORT WAVE RADIATIONS AND OF BIO-ELECTRIC CURRENTS IS DECREASED.

"The fundamental principles of the shockless operation may be stated as follows: *Every adequate stimulus, with or without inhalation anesthesia, whether from trauma or emotion, activates the brain-thyroid-adrenal-sympathetic system.* That is, the sight of the operating room, the spoken word implying danger, the taking of the anesthetic, the instrumental injury of

tissues in the course of the operation and the traction of stitches after the operation, *all are adequate stimuli*. As the result of this stimulation of the brain-thyroid-adrenal-sympathetic system, the electric potential falls AND THE EMISSION OF RADIATIONS IN THE SHORT WAVE FIELD ARE CORRESPONDINGLY DIMINISHED. Obviously the only way of preventing this result is by the development of a technique which will exclude from the brain the stimuli of the special senses and the stimuli of common sensation. THE INHALATION ANESTHETIC IN ITSELF AND NARCOTICS, AS WE HAVE SHOWN, DECREASE THE ELECTRIC POTENTIAL AND THE PERCENTAGE OF SHORT WAVE RADIATION. There exists no single agent that is entirely harmless in itself and can produce anoci-association which is the goal of operative surgery." Page 200.

"Among the outstanding characteristics of animals is the peculiar arrangement WHEREBY ENERGY CAN BE RELEASED AT VARYING SPEEDS, AS FOR EXAMPLE, IN THE RESPONSES TO THE SENSES OF SIGHT, SMELL AND HEARING, as manifested by the flight of a bird and the rushing attack of a lion." Page 206.

"When the flame is so nearly extinguished THAT NOT ENOUGH ELECTRIC ENERGY IS GENERATED TO MOVE THE MECHANISM SUFFICIENTLY TO SUSTAIN THE STRUCTURE OF THE RADIOGENS OF THE PROTOPLASM, THE STATE OF EQUILIBRIUM OR DEATH EXISTS." Page 207.

"The researches of Lillie, Loeb, Osterout, Mathews, McClendon, Hill, Lucas and of many other biophysicists and biochemists INDICATE THAT THE FUNCTIONS OF THE CELLS OF LIVING ORGANISMS ARE RELATED TO ELECTRICAL PROCESSES; that the living cell, whether it exists alone or as an element in a complex organism, possesses a certain store of potential energy which is manifested by variations in polarity AND BY ACTION CURRENTS; that variations in the permeability of the living cell in response to the electrically charged elements of the fluid which surrounds it parallel variations in irritability in response to stimulation; that factors which suspend or abolish irritability also suspend or abolish alterations in permeability.

"EVERY ACTIVITY OF LIVING TISSUE IS ACCOMPANIED BY ELECTRIC CURRENTS; AND MANY ACTIVITIES ARE ALSO INITIATED BY ELECTRIC CURRENTS. In fact, the work of the investigators referred to above shows how strong is the tendency to consider THAT VITAL PROCESSES ARE ASSOCIATED WITH ELECTRIC ENERGY.

"IN VIEW OF THIS TREND OF PHYSIOLOGICAL CONCEPTIONS, the electrical properties of living protoplasm become of vital interest. AS THIS INTEREST EXTENDS, THE NEED OF DEFINITE QUALITATIVE DATA INCREASES. The laws which govern the action of electrical forces in inorganic systems are known exactly. IT IS POSSIBLE TO CALCULATE EXACTLY HOW MUCH HEAT, OR WHAT CHEMICAL CHANGE, OR HOW MUCH WORK WILL RESULT FROM THE PASSAGE OF A CURRENT OF KNOWN STRENGTH THROUGH A KNOWN RESISTANCE DURING A DEFINITE PERIOD OF TIME.

"The action of electric energy in protoplasm, although all the conditions are far more complicated than in inorganic substances, is *governed by the same laws*. In protoplasm, as in inorganic matter, electric currents will always take the path over the lowest available resistance.

"The facts already established regarding bio-electric currents are sufficient to indicate the importance of further investigation, especially along certain lines. For example: WHAT IS THE RANGE OF THE ELECTRIC CONDUCTIVITY OF LIVING TISSUE? How does that range compare with that of other electrical conductors? Is the range of conductivity *the same for all types of tissue*, and in each tissue DOES IT REMAIN CONSTANT under all conditions? *Is the electric conductivity of each tissue a factor in the production of the activities of the organism*, to which a fairly CONSTANT value can be assigned?"
Pages 216-217.

"In the patient who had been unconscious, the conductivity of the cerebellum was higher than that of the cerebrum. In the other patient, as in all our normal animals, the conductivity of the cerebrum was higher than that of the cerebellum.

"6. The conductivity of the gray matter of the brain is higher than that of the white matter.

"7. EXHAUSTION FROM ANY CAUSE—SURGICAL SHOCK, INSOMNIA, EMOTION (fright), INFECTION, ETC.—IS MARKED BY A DIMINISHED CONDUCTIVITY OF THE BRAIN AND AN INCREASED CONDUCTIVITY OF THE LIVER.

"8. THE IMMEDIATE EFFECT OF ACTIVATION APPEARS TO BE AN INCREASED CONDUCTIVITY OF THE BRAIN, TENDING LATER TO DECREASE AS THE STAGE OF EXHAUSTION APPROACHES. THIS HAS BEEN SHOWN TO BE AN IMMEDIATE EFFECT OF PHYSICAL INJURY; AN EARLY EFFECT OF THE INJECTION OF DIPHTHERIA TOXIN; AN IMMEDIATE EFFECT OF THE INJECTION OF ADRENALIN.

"9. Thyroid feeding in large doses over a prolonged period produces the typical symptoms of hyperthyroidism WITH ULTIMATE EXHAUSTION, ACCOMPANIED BY THE CHANGES IN THE CONDUCTIVITY OF THE BRAIN TYPICAL OF EXHAUSTION FROM ANY OTHER CAUSE; i.e., THE CONDUCTIVITY OF THE CEREBRUM AND CEREBELLUM IS DECREASED."
Pages 224-226.

"A LIMITED SERIES OF OBSERVATIONS OF THE INFLUENCE OF VARIOUS AGENTS, WHICH PRODUCE MARKED CLINICAL EFFECTS, INDICATE THAT THE PROGRESS OF ALTERATION IN FUNCTION PRODUCED BY ANY AGENT IS COINCIDENT WITH CHANGES IN ELECTRIC CONDUCTIVITY."
Page 228.

"From these findings it would appear that the intra-cellular changes in exhaustion and shock which are revealed by the microscope ARE PARALLELED BY ALTERATIONS IN ELECTRIC CONDUCTIVITY, AND THAT BOTH THE HISTOLOGIC AND THE ELECTRIC CHANGES BEAR A DIRECT RELATION TO THE VITALITY OF THE ORGAN." Page 229.

"3. THE INJECTION OF ADRENALIN PRODUCES AN INCREASE IN THE CONDUCTIVITY AND CAPACITY OF THE BRAIN AND SPINAL CORD AND IN THE MEDULLA OF THE ADRENAL GLANDS, AND A DECREASE IN THE CONDUCTIVITY AND CAPACITY OF THE LIVER, KIDNEY, SPLEEN, THYROID GLAND, CORTEX OF THE ADRENAL GLANDS AND OF VOLUNTARY MUSCLE." Page 232.

"1. INFLUENCES WHICH AFFECT THE GENERAL PHYSICAL CONDITION OF THE ORGANISM PRODUCE CHANGES IN ELECTRIC CONDUCTIVITY IN THE DOMINATING REACTIVE TISSUES, these changes being uniformly and measurably manifested in the brain and the liver. Apparently these changes in conductivity appear more promptly than any gross clinical alteration." Pages 238-239.

"5. THESE STUDIES INDICATE THAT ELECTRIC CONDUCTIVITY MEASUREMENTS PROVIDE A MEANS WHEREBY TO FURTHER THE INTERPRETATION OF THE NORMAL OPERATION OF THE ORGANISM, AND WHEREBY TO MEASURE THE PROGRESS OF PATHOLOGICAL PROCESSES WITHIN THE VARIOUS ORGANS AND TISSUES.

"6. From our findings to date, it would appear that the intracellular changes in exhaustion and shock which are revealed by the microscope ARE PARALLELED BY ALTERATIONS IN ELECTRIC CONDUCTIVITY, AND THAT BOTH THE HISTOLOGICAL AND THE ELECTRIC CHANGES BEAR A DIRECT RELATION TO THE VITALITY OF THE ORGAN." Page 239.

"VARIATIONS IN FUNCTIONAL ACTIVITY INDICATE VARIATIONS IN OXIDATION; VARIATIONS IN OXIDATION ARE MANIFESTED BY VARIATIONS IN HEAT PRODUCTION. IF HEAT IS A CONSTANT PRODUCT OF FUNCTIONAL ACTIVITY, then, if we could measure the progressive changes in the temperature of the various tissues and organs during the various phases of excitation and exhaustion under conditions identical with those formerly studied, we not only should be able to check our findings in the previous researches *but should be able finally to link those findings with the clinical evidence.*

"AS THE FIRST MEANS TO THIS END WE DECIDED TO USE THE METHOD OF MEASUREMENT EMPLOYED BY PHYSICISTS FOR THE MEASUREMENT OF MINUTE TEMPERATURE VARIATIONS, THAT IS, TO EMPLOY THERMOCOUPLES SO CONSTRUCTED THAT THEY COULD BE APPLIED TO THE BRAIN, LIVER, MUSCLE, OR OTHER TISSUE OF THE LIVING ANIMAL." Page 243.

"Their reasons for undertaking this research are significant. In their Premier Memoire sur la Chaleur Animale, they state in brief that this research was suggested as the result of certain other attempts to answer the following questions: 'ARE THE VITAL FORCES OF AN ELECTRICAL OR CHEMICAL NATURE? Has the organism its own *peculiar* mode of action?'"

Pages 243-244.

"*Is the stimulation of the nerves of sensation necessarily transmitted to the cerebral hemispheres, or is the direct transmission of the stimulation in*

the normal animal arrested at the spine or in the pons Varolii? Furthermore, IS THE TRANSMISSION TO THE BRAIN IN ACCORDANCE WITH THE FUNDAMENTAL LAWS GOVERNING TRANSMISSION ALONG THE NERVES? Is the *formation of a perception in the brain* accompanied by phenomena which the means of investigation at our command *will not permit us to regard as subject to the general laws of material movement?*" Page 244.

"In Schiff's research *thermocouples* were employed which were applied directly to exposed nerves or inserted into different parts of the brain. The author felt that he had established the following points:

"1. That the irritation of the nerve increased its temperature.

"2. That successive irritations produced diminished response to the nerve.

"3. THAT EVERY PERIPHERAL IRRITATION GAVE A RESPONSE IN THE BRAIN MANIFESTED BY INCREASED TEMPERATURE."

Page 244.

"7. THAT NOT ONLY TACTILE SENSATION BUT STIMULATION OF ALL THE ORGANS OF SPECIAL SENSE PRODUCED AN INCREASE IN THE TEMPERATURE OF THE CEREBRUM."

Page 244.

"9. That psychic excitation, independent of the sensations which produced it, WAS ACCOMPANIED BY A PRODUCTION OF HEAT IN THE NERVE CENTERS, WHICH WAS QUANTITATIVELY GREATER THAN THE HEAT ENGENDERED BY LESS COMPLEX SENSATIONS.

"THE AUTHOR BELIEVED THAT HIS OBSERVATIONS DEFINITELY EXCLUDED THE POSSIBILITY THAT THE TEMPERATURE CHANGES NOTED WERE DUE TO CIRCULATORY CHANGES: AND THAT HIS EXPERIMENTS WERE SUFFICIENT 'TO ESTABLISH, WITH ALL THE DESIRABLE PRECISION, THAT THE PRODUCTION OF HEAT WHICH WE HAVE OBSERVED IS REALLY THE RESULT OF EXCITATION WHICH IS PECULIAR TO AND AN INTRINSIC PART OF THE NERVE ELEMENTS.'"

Page 245.

"In 1912, A. V. Hill UTILIZED THE THERMO-ELECTRIC METHOD IN AN INVESTIGATION TO DETERMINE THE PRESENCE OR ABSENCE OF TEMPERATURE CHANGES DURING THE TRANSMISSION OF A NERVOUS IMPULSE."

Page 246.

"These studies have yielded the following results:

"1. *From the very beginning it was evident that variations in the temperature of the brain under varying conditions parallel variations in the histologic picture and in the electric conductivity of the brain under the same conditions.* Thus the progress of exhaustion from any cause was marked by a progressive decrease in the temperature of the brain and the liver, the rapidity of which was in direct relation to the rate at which the degree of exhaustion advanced.

"2. The state of excitement of ether anesthesia was marked by an increase in the temperature of the brain; but during surgical anesthesia the temperature fell continuously until death. On the other hand, in an animal

under nitrous oxide anesthesia, the temperature of the brain remained practically unchanged even during prolonged anesthesia. Page 250.

"An attempt was made to establish our assumption that the changes in the temperature of the brain after the injection of adrenalin may be justly ascribed to variations in oxidation. Preliminary experiments have shown that after the injection of adrenalin the temperature of the venous blood coming from the brain was increased to above that of the arterial blood to the brain. THIS FINDING, IF CONFIRMED, WILL BE A STRONG INDICATION THAT THE TEMPERATURE CHANGES WITHIN THE BRAIN CANNOT BE ENTIRELY, IF AT ALL, DUE TO VARIATIONS IN THE BLOOD SUPPLY TO THE BRAIN.

"The findings in these studies which accord with the histological studies and the electric conductivity measurements support the following conclusions:

"1. THE BRAIN IS THE TISSUE UPON WHICH DEPEND THE REACTIONS OF THE ORGANISM TO STIMULATION." Pages 253-254.

"WE DEMONSTRATED THAT THE CAUSE OF WILLIAM LYNDMAN'S DEATH WAS AN EXCESSIVE PHYSICAL STIMULATION OF THE SENSORY NERVES." Page 357.

"That is to say, the impulses that finally killed William Lyndman PASSED OVER THE NERVE PATHWAYS TO THE BRAIN AND THENCE WERE BROADCAST THROUGHOUT THE BODY, ACTIVATING THE IDENTICAL MECHANISM USED IN STRUGGLE OR IN THE EMOTIONS SO EXCESSIVELY THAT COMPLETE EXHAUSTION RESULTED."

Page 357.

"BUT EVEN THESE FINDINGS GAVE US NO UNDERSTANDING AS TO THE SOURCE AND NATURE OF THE ENERGY WHICH WAS PRESENT IN LIFE AND WAS LOST IN DEATH.

"We then tested the variations in the vitality of organs BY EXCLUDING FROM THEM THE CIRCULATION OF THE BLOOD." Page 358.

"THE PRIMARY CAUSE OF DEATH FROM SHOCK WAS NOT TO BE FOUND IN THE CIRCULATION, IN THE RESPIRATION, OR IN THE BLOOD. Our experiments in which the blood supply of organs and tissues was excluded proved that the excitation, depression and death due to physical injury, emotional excitation, toxins, etc., *was not due* to failure of the kidneys, the stomach and intestines, the pancreas, the spleen, the thyroid gland, the muscles, the tendons, the connective tissue, the bones or the joints."

Pages 358-359.

"IN THIS LONG QUEST WE FOUND A CLUE TO THE FUNDAMENTAL NATURE OF LIVING PROCESSES." Page 359.

"THEY SEEMED TO PROVIDE THE CLUE TO THE CONTROL OF THE ENERGY THAT MOST IMMEDIATELY GOVERNS LIFE, THE FAILURE OF WHICH CAUSES DEATH."

Page 359.

"Since all matter is electrical in nature and since in the final analysis all energy is radiant and electric energy, WE CONCEIVED THAT PROTOPLASM MUST BE GENERATED AND OPERATED BY RADIANT AND ELECTRIC ENERGY." Page 360.

"Continuing his quest further, this physicist would find that the secondary or re-radiation in protoplasm was related to oxidation solely; THAT OXIDATION WAS CONTROLLED BY THE NERVE CELLS OF THE BRAIN AND THE NERVE CELLS OF THE SYMPATHETIC SYSTEM, and that *the nerve cells of both systems were adaptatively speeded up or lessened in activity* by the thyroid and the adrenal glands, which in turn are controlled in their adaptive activity *by the brain* and the adrenal-sympathetic system, while the brain, in turn, is controlled by the special senses." Page 362.

"HE WOULD SEE CLEARLY THAT IT IS THE GREAT PREPONDERANCE OF WATER WHICH DISSIPATES IT. THE PHYSICIST WOULD THEN SEE WHAT THE FUEL THAT ENERGIZES PROTOPLASM IS. HE WOULD SEE THAT PROTOPLASM IS WATER-COOLED." Page 363.

"In his consideration of the Radio-Electric conception as an explanation of living phenomena our physicist would find that although it cannot be proven, since protoplasm has not been generated in the laboratory, IT NEVERTHELESS HARMONIZES MANY PHENOMENA OF THE LIVING STATE. IT OFFERS MANY PARALLELS AND ANALOGIES BETWEEN THE LIVING STATE AND NON-LIVING PHENOMENA. IT HAS SUGGESTED A SOLUTION OF CERTAIN PROBLEMS PERTAINING TO THE NORMAL AND THE PATHOLOGICAL STATES OF LIVING ORGANISMS. The radio-electric conception EXPLAINS OUR FAILURE TO SHOW THAT THE LOSS OF THE ENERGY OF THE LIVING STATE IN SURGICAL SHOCK WAS NOT DUE PRIMARILY TO FAILURE OF THE CIRCULATION OR OF RESPIRATION OR TO CHANGES IN THE CHEMISTRY OF THE BLOOD." Pages 364-365.

"IT EXPLAINS THE PRESENCE IN LIVING ORGANISMS OF ELECTRIC POTENTIAL AND OF ELECTRIC CURRENTS. It shows the necessity of continuous oxidation for the maintenance of radiant and electric properties. IT SHOWS THE REASON WHY THE ELECTRIC CONDUCTIVITY, CAPACITY AND POTENTIAL VARY WITH THE SPEED OF FUNCTION AND THE RATE OF GROWTH." Page 365.

"IT HARMONIZES THE COMPLETE DEPENDENCE OF THE FUNCTION OF THE BRAIN UPON OXIDATION AND EQUALLY UPON ELECTRIC POTENTIAL." Page 366.

"IT IS OBVIOUS THAT THE RULE PLAYED BY RADIATION AND ELECTRICITY IN LIVING PROCESSES IS NO MORE MYSTICAL THAN THAT PLAYED BY RADIATION AND ELECTRICITY IN MANMADE MECHANISMS. ELECTRICITY BROUGHT OVER A SINGLE FEED WIRE MAY LIGHT AN ELECTRIC LAMP, OPERATE A DYNAMO OR TURN AN ELECTRIC DRILL. RADIATION MAY OPERATE A RADIO OR A ROBOT, THE FINAL MANIFESTATION OF THE ELECTRIC POWER OR OF THE RADIATION DEPENDING UPON THE RECEIVING INSTRU-

MENT. SO IN LIVING PROCESSES THE FINAL MANIFESTATION DEPENDS UPON THE END ORGAN OR THE RECEIVING MECHANISM. The effect on the receiving mechanism in an ameba would differ from that in a lion; THE EFFECT IF THE THYROID GLAND RECEIVED THE ELECTRIC CURRENT OR RADIATION WOULD VARY FROM THAT IF THE PANCREAS RECEIVED IT. Like the receiving mechanisms made by man, each produces its specific response.

"Thus we have sketched the long road which we have traveled to arrive at the conception that not only this or that *but every phenomenon of life* can be identified in the terms of physics AND CAN BE EXPLAINED IN THE LIGHT OF A RADIO-ELECTRIC THEORY." Pages 367-368.

"A BASIS FOR THE THEORY OF MEDICINE"

By A. D. Speransky, Director of the Department of Patho-Physiology of the Soviet Union Institute of Experimental Medicine.
Published by International Publishers, New York, July 14, 1935.

"DURING RECENT YEARS IT HAS OFTEN BEEN REMARKED THAT THE SCIENCE OF MEDICINE IS PASSING THROUGH A CRISIS. On a *superficial* view there would seem to be little basis for such a judgment. Each year sees the addition of tens of thousands of researches directly or indirectly affecting medicine; NEW methods of technique are continually rising, NEW fields of work are being opened up. In size of output and intensity of study are few branches of science which can compare with medicine.

"WHAT IS WRONG THEN? An effort to answer this question leads inevitably to the conclusion that medicine has gradually and almost imperceptibly ceased to treat its subject matter in a synthetic form, substituting instead a comprehensive and often profound analysis of details. SPECIALIZATION, CARRIED TO AN EXTREME DEGREE, HAS ALMOST BECOME THE HALLMARK OF CONTEMPORARY THEORETICAL AND PRACTICAL MEDICINE. AS A RESULT, MEDICAL SCIENCE HAS BEEN BROKEN UP INTO SEPARATE PARTS, BOTH AS REGARDS SUBJECT MATTER AND METHOD.

"Already, from time to time, many physicians have proclaimed the need for a return to a synthetic form of work. Such appeals, however, have not yielded any real results FOR THEY LEFT UNDECIDED THE QUESTION HOW EXACTLY THIS WAS TO BE REALIZED. A formal union of the isolated parts can be easily achieved by any method of work. BUT IT HAS NOT LED, AND CANNOT LEAD, TO THE DESIRED GOAL, AND IS EVEN CAPABLE OF DELIBERATELY DIRECTING IT ALONG A WRONG PATH.

"Hence, the question remains one of the search for the essential principles for union. THIS DEMANDS A METHOD CAPABLE OF UNIFYING NOT MERELY DIVERSE BUT EVEN CONTRADICTORY PHENOMENA. A consistent analysis must reveal the general laws underlying a mass of par-

ticular data. Then, at last, the investigator will be in possession of the 'LEADING LINK', A GRASP OF WHICH ENABLES ONE, AS LENIN REMARKED, TO MANIPULATE THE WHOLE CHAIN.

"FOR A NUMBER OF YEARS PAST, TOGETHER WITH MY COLLABORATORS, I HAVE BEEN ENGAGED IN RESEARCH OF THE PARTICIPATION OF THE NERVOUS SYSTEM IN THE GENESIS OF VARIOUS PATHOLOGICAL PROCESSES. The originally limited, special problem gradually assumed larger and larger dimensions, research widened out, embraced NEW fields and yielded NEW data of a varied nature. The appraisal of these data LED SO OFTEN TO A CONFLICT WITH MANY the study of isolated questions. By the force of circumstances, WE WERE COMPELLED TO PASS TO A REVISION OF THE CONCEPTIONS OF THE BASIC PROCESSES OF GENERAL PHYSIOLOGY, FROM THE POINT OF VIEW OF THE NERVOUS COMPONENT IN THEIR ORIGIN AND HISTORY.

"AS A RESULT, A SYSTEM CAME INTO BEING CAPABLE NOT ONLY OF UNIFYING AROUND A COMMON CENTRE ALL THE DIVERSE DATA PROVIDED BY PATHOLOGY AND THE CLINIC, BUT ALSO OF ADVANCING THESE BRANCHES OF SCIENCE ALONG A CHARACTERISTIC AND AS YET ALMOST UNTRODDEN PATH. The time has come when the matter *can no longer be left in the exclusive possession of a limited circle of persons* but imperatively demands the wide participation of scientific circles for testing what has been achieved, for judging the propositions that have been enunciated and, above all, for ensuring further progress. This has impelled me to embark on the publication of our views in the Soviet and foreign press."

Pages 13-14.

"THE EXPOSITION OF MATERIAL OBTAINED AS THE RESULT OF A LONG COURSE OF WORK COULD TURN OUT TO COME IN ADVANCE OF THE CAUSE WHICH GAVE RISE TO THE WHOLE SEQUENCE."

Page 15.

"It may be mentioned in passing that even now a number of difficulties in the way of systematic exposition still remain; THE CONCLUSIONS ARRIVED AT HAVE PROVED TO BE SO FAR FROM THOSE GENERALLY ACCEPTED THAT TO SET OUT THE SUBJECT DIRECTLY, WITHOUT ANY INTRODUCTION DEPICTING THE WORK IN ITS EVOLUTIONARY COURSE, WOULD HAVE INVOLVED THE RISK OF BEING NOT UNDERSTOOD OR UNDERSTOOD WRONGLY."

Page 16.

"I TOOK AS MY STARTING POINT THE INSTABILITY OF NERVE TISSUE IN THE FACE OF SHARP CHANGES OF TEMPERATURE."

Page 21.

"In order to understand the working of a *particular nerve mechanism*, it is not sufficient to know its constituent parts and the order of their inclusion in the process. A STIMULUS ARISING AT ONE POINT OF THE NERVOUS SYSTEM PASSES THROUGH A SERIES OF STAGES IN THE CENTRIPETAL AND CENTRIFUGAL DIRECTIONS. The final results de-

pend, not only on each of the links taken separately, BUT ALSO ON THE STATE OF THE WHOLE CHAIN. It is what is called tonus, i.e., the degree of working readiness, and is measured by the threshold of stimulation.

"The tonus of the nervous system is determined by two basic factors. One is the chemical background against which the process takes place. The other is connected with the functional state of nerve structures taking part in the reaction. This factor embraces not only the totality of the producing or active elements themselves, BUT ALSO THE MAINTENANCE BY THESE ELEMENTS OF NORMAL CONNECTIONS WITH OTHERS THAT HAVE NO IMMEDIATE RELATION TO THE PROCESS CONCERNED.

"ANY NERVE CELL, WHEREVER IT MAY BE SITUATED, IS A RECEPTOR APPARATUS FOR ANY OTHER NERVE CELL IF IT CAN BE CONNECTED WITH THE LATTER DIRECTLY OR INDIRECTLY BY THE TRANSFERRED STIMULUS. The general sum total of such unconsidered influences is reflected in the state of excitability of the working parts. In order that the subcortical cerebral regions, which express high degrees of this excitation through epileptic attacks, should be in a state of the requisite tonus, IT IS NECESSARY THAT THEIR CONNECTIONS WITH OTHER NERVE REGIONS SHOULD NOT HAVE BEEN DESTROYED." Page 55.

"On one occasion, the operation of excluding smell, sight and hearing was performed on a young, very lively and active dog which was suffering from a skin disease with very strong itching (*acarus folliculorum*). The animal incessantly scratched itself not only in the waking condition but also during sleep. When the above mentioned receptors were cut out one after another, its behaviour did not change. The animal remained active, played and quarrelled with its neighbors, took food independently and occupied the normal amount of time in sleep.

"But as soon as the skin disease began to heal and the itch disappeared, the dog at once lost all its liveliness and began to pass whole days in sleep. The other vital manifestations changed correspondingly — the taking of food, time of defecation, etc. As soon as the healing was interrupted and the disease reappeared, the animal once again became lively and sociable. Thus the missing stimuli were made up for here by the heightened functioning of the skin receptor. As long as this was the case, the general tonus was also maintained at the necessary level and the behaviour of the animal remained normal.

"I DESCRIBED ABOVE THE REASONS WHY WE REGARD THE NERVOUS MECHANISM OF EPILEPTIC ATTACKS AS CLOSELY ALLIED TO THE NERVOUS MECHANISM OF RABIES." Page 60.

"The nervous system is an organ which cannot be altered locally. LOCAL INTERFERENCE AFFECTS THE WHOLE NERVOUS NETWORK; these changes pass away gradually and not completely, AND GIVE RISE TO A NUMBER OF ADAPTATIONS TO THE NEW ARTIFICIAL NORM."

Page 61.

"The conclusion that must be drawn is that status epilepticus, as a separate variety of the convulsive state, is not caused by toxemia alone. THE

ORIGIN OF THIS FORM IS FOUND UP WITH THE BASIC PROPERTY OF THE NERVOUS SYSTEM, NAMELY THE RHYTHMICAL CHARACTER OF ITS FUNCTIONING. IF THE STRENGTH OF THE IRRITATION ATTAINS A CERTAIN DEGREE, THEN THE PROCESS EVOKED BY IT OCCURS OF ITSELF." Page 63.

"Collier's reference to fatty degeneration of the heart as a clear sign of toxemia cannot have any decisive significance. *A direct causal connection between the two has not been proved.* THE STUDY OF THE ROLE OF THE NERVOUS SYSTEM in various pathological processes FURNISHES US DAILY WITH PROOFS THAT, in the development of many forms of DEGENERATIVE PHENOMENA AT THE PERIPHERY, THE BASIC FACTOR IS THE INITIAL DISEASE OF THE NERVOUS SYSTEM." Page 63.

"For the solution of the question of genesis, these conceptions prove useless. For now we are no longer concerned with cortex, subcortex and other conventional subdivisions of the nervous system, SINCE ALL PARTS OF THE LATTER CAN BE BROUGHT INTO AN ACTIVE CONDITION BY IRRITATION ARISING AT ANY NERVE POINT." Page 63.

"IN OBSERVING THE LOCAL PHENOMENA OF INFLAMMATION, WE NATURALLY BEGIN TO LOOK FOR THEIR CAUSE SOMEWHERE IN THE VICINITY. CONSEQUENTLY, THE FIRST QUESTION WHICH HAS TO BE RAISED IS WHETHER IN THE PRESENT CASE THE BLOOD MAY NOT BE THE SOURCE OF IRRITATION.

"THIS MUST BE ANSWERED IN THE NEGATIVE. In all the instances described above, where the action gives rise to the general picture of encephalitis, the infiltration of the brain substance IS BY NO MEANS EXHIBITED AROUND ALL THE BLOOD VESSELS. FAR FROM THIS BEING THE CASE, in some processes, such as epidemic encephalitis, these changes have a specific localization. It is absolutely impossible to assume that the injurious agent should by accident always penetrate through the same particular branches of the blood vessels.

"IT REMAINS TO LOOK FOR ANOTHER CAUSE."

Page 69.

"The question of the formation of cerebro-spinal fluid, its circulation and its secretion from the medullary region, IS ONE OF THE MOST DIFFICULT IN THE WHOLE OF PHYSIOLOGY. In spite of a large number of researches, initiated by Schwalbe as far back as 1869, and continued in the classical investigations of Key and Retzius, EVEN THE MORPHOLOGICAL ASPECT IS FAR FROM HAVING BEEN CLEARED UP. Thus the role of the Pacchioni granulations, the existence and structure of perivascular, pericellular and adventitious spaces, the circulation in them, the sources and mechanism of formation of cerebro-spinal fluid, the passage of the latter from the subarachnoid space into the circulatory AND ESPECIALLY THE LYMPHATIC SYSTEM—all these are questions which still present problems for the investigator even today and are a long way from having been solved.

"It is considered that the subarachnoid space is a collector in which cerebrospinal fluid accumulates from various medullary regions and from which its secretion begins. *It does not, however, possess direct, anatomically defined connections either with the circulatory or with the lymphatic system of the body.* On the contrary, within the spinal cord and brain IT IS CONTINUED IN THE FORM OF SPECIAL CANALS RUNNING ALONGSIDE THE BLOOD VESSELS AND SURROUNDING THEM. These canals are termed adventitious sheaths and in the embryonic stage, during the growth of the blood vessels into the substance of the brain, they develop from mesenchyma surrounding the nerve tube (Robin-Virchow spaces). During this process, the blood vessels become, as it were, clothed by the cerebral membranes, pushing them before them. The pia and arachnoid membranes do not completely fuse with one another AND FORM CREVICE-LIKE CANALS which are accessible to the cerebro-spinal fluid. Owing to this, the outer walls of these crevices, immediately adjacent to the brain substance, form a continuation of the pia mater, while their inner wall, lying against the blood vessel, is a continuation of the subarachnoid membrane (Cushing). In the brain substance, the cells of these membranes are replaced by neuroglia; hence THE ADVENTITIOUS SPACES COME INTO INTIMATE COMMUNICATION WITH THE NERVE ELEMENTS WITHIN THE BRAIN. BESIDES THESE CANALS leading into the depths of the brain substance, communications of the subarachnoid space with the cerebral ventricles (the foramina of Magendie and Luschka) are to be observed in the posterior cerebral velum."

Pages 89-90.

"Our interest being aroused in these questions, we began a series of investigations, FIRST OF ALL CONCENTRATING ATTENTION ON THE PATHS OF OUTFLOW INTO THE LYMPHATIC SYSTEM, SINCE BOTH THE MORPHOLOGY AND PHYSIOLOGY OF THESE PATHS HAVE BEEN LITTLE INVESTIGATED. In so doing we had also to make an appropriate alteration in the technique."

Page 93.

"The first problem is to make clear whether the lymph in the spaces within the nerve trunks can actually move towards the center, AND WHAT FORCES CONTROL THIS PROCESS."

Page 117.

"It has been frequently noted that undamaged sheaths REPRESENT AN OBSTACLE TO THE PENETRATION OF MANY SUBSTANCES FROM OUTSIDE INTO THE UNDAMAGED NERVE TRUNK. THESE OBSTACLES, HOWEVER, ARE NOT ABSOLUTE. IT IS WELL KNOWN THAT THE APPLICATION, FOR EXAMPLE, OF CHLOROFORM OR SOLUTIONS OF COCAINE TO THE SURFACE OF THE NERVE TRUNK RESULTS IN LOSS OF EXCITABILITY AND COMPLETE INTERRUPTION OF CONDUCTIVITY ALONG IT."

Page 118.

"These facts show that some substances, introduced into the nerve trunk are capable of being retained a long time within its sheaths, and are also conveyed along it. THERE IS NO DOUBT THAT THE MOVEMENT HERE WAS STIMULATED BY LOCAL INCREASE OF PRESSURE, PRODUCED BY THE INJECTION, SINCE THE EXPERIMENT SHOWED THAT IT

TOOK PLACE IN BOTH DIRECTIONS. THE DIFFERENCE IN THE EXTENT OF THE MOVEMENT ABOVE OR BELOW DEPENDS IN PART ON THE DIRECTION OF THE INJECTION, i.e., IN PRACTICE, ON THE DIRECTION IN WHICH THE POINT OF THE NEEDLE IS INSERTED."

Page 119.

"We know, for example, that tetanus toxin moves along the nerve trunk, BUT WE KNOW NEITHER THE MODE OF ITS ENTRANCE INTO THE TRUNK NOR THE FORCES DETERMINING ITS MOVEMENT." Page 120.

"The state of fatigue includes not only muscular phenomena, BUT ALSO CHANGES IN THE NERVOUS SYSTEM. In estimating the genesis of these phenomena, one must perhaps also take into account the mechanism which has been the subject of investigation in this chapter.

"It remains to describe one further group of facts. This concerns the question of axis cylinders. DO THEY PLAY ANY PART IN THE PROCESS WE ARE INVESTIGATING, or is the matter restricted solely to the perineural and endoneural spaces?

"A positive solution of this problem is based on *indirect data*, mainly on the fact that tetanus toxin enters into chemical combination with nerve tissue. This is partly confirmed also by histo-pathological observations (the relevant literature has been mentioned above). *There are no facts permitting an estimate of the phenomenon* under direct experimental conditions. THERE IS NO DOUBT THAT IT IS VERY DIFFICULT OR EVEN IMPOSSIBLE TO MAKE A DIRECT EXPERIMENT IN THIS CASE. Hence, everything that the experimental form of work is capable of giving deserves attention here.

"Two factors must be taken into account in organizing such work.

"In the first place, the substance taken for experiment MUST PENETRATE FROM THE PERIPHERY into the medulla actually ALONG THE NERVE TRUNK AND NOT THROUGH THE BLOOD." Pages 125-126.

"IN CASES WHERE THE IRRITANT WAS APPLIED TO THE SURFACE OF THE SEVERED NERVE, 'TROPHIC' DISTURBANCES DEVELOPED MORE RAPIDLY AND WERE CONSIDERABLY MORE INTENSE. WE EXPLAINED THIS AS DUE TO THE FACT THAT A DOUBLE TRAUMA OF THE NERVE TRUNK TOOK PLACE HERE AND THAT, MOREOVER, AN ADDITIONAL PATH WAS OPENED UP TO THE NERVE CELL, NOT ONLY THROUGH THE NERVE SPACES BUT ALSO THROUGH THE AXIS CYLINDERS, WHICH ARE INACCESSIBLE FOR DIRECT INJECTIONS."

Page 127.

"The data obtained by us in the course of our study of the circulation in the medulla, its submembranous spaces and spinal nerves, gave rise to a number of NEW WORKING HYPOTHESES FOR INVESTIGATING THE ROLE OF THE NERVOUS SYSTEM IN PATHOLOGICAL PROCESSES.

"In the first place it was necessary to continue observations on the action of various substances penetrating independently, or artificially introduced, into the region of the central nervous system. Here special attention is

attracted by the groups of so-called specific substances, i.e., viruses, toxins and their anti-bodies. Having established previously the role of cerebro-spinal fluid in the pathogenesis of rabies, WE COULD NOT BUT ASK OURSELVES WHY THERE EXISTS NO PASSIVE IMMUNIZATION AND SPECIFIC TREATMENT OF THIS DISEASE. The question is not new. It has already been raised repeatedly, *but its solution has been sought either 'in a test-tube' or in connection with the circulatory system.*" Page 131.

"Still less is obtained by the application of anti-rabic serum in rabies. It has never been observed to produce a specific effect in cases of intra-cerebral infection of animals. Thus, Kraus and Marie, in spite of many years' work, could not note any effect of it on the organism. The same is reported by Keller, Clairmont, Murillo, Miessner, Kapfberger, and others. Reports of positive results from the application of anti-rabic serum are isolated and have not been subsequently confirmed. As early as 1835, Tizzoni and Centanni described some experiments in which anti-rabic serum prepared by them exhibited a prophylactic action, provided the infection was subcutaneous.

"In 1913, Pfeiler obtained positive results by subdural introduction of anti-rabic serum in sheep which had been infected through the anterior chamber of the eye. Fermi also observed the specific action of his serum on animals. But he inoculated them only with his virus ('virus Fermi') and only subcutaneously. Kraus and Fukuhara tested these experiments under the same conditions and with the same virus, but obtained a negative result. TO SUM UP, THE QUESTION OF THE PROPHYLACTIC AND CURATIVE ACTION OF ANTI-RABIC SERUM IN ALL METHODS OF INFECTION HAS RECEIVED A NEGATIVE DECISION."

Page 133.

"BUT IN EXPERIMENTS WITH THE INTRODUCTION OF ANTI-RABIC SERUM INTO THE BLOOD OF ANIMALS INFECTED INTRACEREBRALLY, WE DID NOT OBTAIN ANY EFFECT FROM THEIR USE."

Page 135.

"I do not consider myself competent to decide this question. Moreover, this was not the object of our experiments. Their aim was the study of the pathogenesis of the toxic form of scarlatina, and in this respect the result obtained has undoubted interest. On intra-lumbar injection of anti-toxin in quantities that were inactive by any other method of introduction, IT WAS NOT ONLY 'NERVOUS SYMPTOMS' THAT DISAPPEARED, AND NOT ONLY THE 'GENERAL STATE' THAT WAS IMPROVED. CHANGES TOOK PLACE IN A NUMBER OF OTHER LOCAL PROCESSES, SUCH AS RASH AND SORE THROAT, AND, PERHAPS, NEPHRITIS WAS PREVENTED. The amount of serum employed by us proved ineffective when introduced directly through the blood into the diseased organs themselves, BUT FROM THE MEDULLARY REGION THEY PUT AN END TO ALL THE PATHOLOGICAL PROCESSES IN THOSE ORGANS.

"This is undoubtedly a problem which can only be solved by studying the origin and nature of these specific 'local' processes."

Pages 144-145.

"WHAT THEN ARE MEASLES AND SCARLATINA, IF BLOCKADE OF THE NERVOUS SYSTEM ALONE HELD BACK OR EXTINGUISHED ALL THE SYMPTOMS OF THESE DISEASES?"

Page 146.

"When all the symptoms of the disease fall out one after another, the disease itself comes to an end. If this process takes place OWING TO REACTIONS OF THE NERVOUS SYSTEM, THEN IT MUST LOGICALLY BE SAID THAT THE NERVOUS SYSTEM WAS NOT ONLY DRAWN INTO THE DISEASE, BUT ITSELF ORGANIZED THE EXTERNAL MANIFESTATIONS OF THE DISEASE. ALL THE REST WAS ONLY THE CONSEQUENCE OF THIS ACTION."

Page 146.

"IN THE DEVELOPMENT OF DIPHTHERIA, THE LEADING PART PLAYED BY THE NERVOUS SYSTEM ALSO STOOD OUT VERY DISTINCTLY."

Page 149.

"IN OTHER WORDS, IN OUR EXPERIMENTS THE IMPULSE TO ALTERATIONS IN THE HEART AND IN THE MEDULLARY SUBSTANCE OF THE SUPRARENAL GLANDS CAME FROM THE NERVOUS SYSTEM, FOR IT IS ONLY ON THE NERVOUS SYSTEM THAT THE DIPHTHERIA TOXIN COULD ACT. In other words, these peripheral affections in diphtheria are secondary. Their cause is not the toxin but the new relations now established between the tissues *and the injured nerve centers.*"

Page 150.

"Now if the disappearance or prevention of local symptoms DEPENDS SOLELY ON THE IMMUNIZATION OF THE NERVOUS SYSTEM it must be admitted that the local reactions of immunity may also proceed in neither the place nor the manner usually accepted. This in its turn gives rise to the question of the nature of 'general' disturbances."

Page 150.

"WE ARE VERY WELL AWARE OF THE FACT THAT THE NERVOUS SYSTEM EXHIBITS ITS FUNCTIONS IN THE ORGANISM ONLY BY PRODUCING CHANGES IN OTHER ORGANS. IN THIS RESPECT, IT ALWAYS INEVITABLY ACTS IN A DUAL FASHION. IF CHANGES TAKE PLACE WITHIN THE NERVOUS SYSTEM ONE CAN BE ASSURED THAT THEY WILL ALSO FIND THEIR EXPRESSION AT THE PERIPHERY. THE NORMAL CYCLE OF REACTIONS IS ALTERED IF THE NORMAL STATE OF THE NERVE IS DESTROYED. WE HAVE CONVINCED OURSELVES OF THIS ON MANY OCCASIONS."

Page 151.

"To obtain a clear result, it is necessary that the magnesium should be introduced, not immediately after 'pumping' but after 40-60 minutes. HENCE, WHAT IS IMPORTANT HERE IS NOT SO MUCH THE DESTRUCTION OF THE NORMAL PERMEABILITY OF THE MEDULLARY VESSELS, AS THE PROCESS WHICH DEVELOPS IN THE NERVOUS SYSTEM AS A RESULT OF OUR INTERFERENCE. It is only after a certain period of time that it reaches the necessary level, and it then exercises a clearly marked influence on the course of OTHER reactions."

"In addition, IT IS OF COURSE IMPOSSIBLE TO DOUBT THAT THE PROCESS TERMED NARCOSIS PROCEEDS FUNDAMENTALLY WITHIN THE CENTRAL NERVOUS SYSTEM."

Page 152.

"PERHAPS, HOWEVER, THE NERVOUS SYSTEM IS INCAPABLE OF ACTIVE IMMUNIZATION, OR THIS PROCESS IS RETARDED IN IT?"

Page 157.

"The data obtained show also that active local immunization OF THE CENTRAL NERVOUS SYSTEM IS NOT ONLY POSSIBLE BUT IS THE MOST HOPEFUL FORM OF IMMUNITY."

Page 159.

"IN ADDITION TO THE REACTIONS OF THE MEDULLARY VESSELS AND MEMBRANES, IT IS NECESSARY TO TAKE INTO ACCOUNT THE IRRITATION WHICH THIS OPERATION PRODUCES IN THE NERVOUS SYSTEM. The degree and direction of biological reactions in various parts of the organism, INCLUDING THE NERVOUS SYSTEM ITSELF, ARE ALTERED; THIS CAN INCREASE SOME PATHOLOGICAL PHENOMENA AND WEAKEN OTHERS."

Page 160.

"THE PROCESSES TAKING PLACE WITHIN THE NERVOUS SYSTEM CAN ONLY BE JUDGED BY THE EXTERNAL REACTIONS REFLECTING THESE PROCESSES AT THE PERIPHERY."

Page 163.

"IN EXACTLY THE SAME WAY, WE HAVE SEEN THAT SORE THROAT AND RASH IN SCARLET FEVER ARE LIQUIDATED BY INFLUENCES EXERTED ON THE NERVOUS SYSTEM. Since the onset of tetanus is usually connected with the toxin making its appearance in the peripheral nerve regions, it was interesting to test this as a method of investigating THE GENESIS of other local processes, using other substances as irritants.

"This naturally brought us to the question of trophic ulcers. THE FORMATION OF ULCERS ON THE CORNEA OF RABBITS AFTER STIMULATING THE GASSERIAN GANGLION BY AN ELECTRIC CURRENT was first observed by Magendie."

Page 163.

"ALL THIS GIVES RISE TO THE IDEA THAT THE INJURY TO THE NERVE CREATES NOT ONLY A POINT OF IRRITATION AT THE PERIPHERY BUT ALSO SOME KIND OF PATHOLOGICAL FOCUS IN THE CENTRE."

Page 165.

"However, something similar must have taken place here also, for SYMMETRICAL AFFECTIONS OF THE EXTREMITIES IN DOGS CAN DEVELOP ONLY AS THE RESULT OF A SYMMETRICAL AFFECTION OF THE NERVOUS SYSTEM."

Page 166.

"WITHIN ITS NERVOUS SYSTEM, HOWEVER, A HIDDEN PROCESS WAS DEVELOPING, AS IS EVIDENT FROM THE RESULTS OF ALL THE EXPERIMENTS."

Page 173.

"THE REAL ILLNESS IS NOT THE ULCER AT THE PERIPHERY. BY SEVERING THE PATHS OF THE PATHOLOGICAL REFLEX, WE DO NOT TREAT THE BASIC INJURY, BUT, LIKE THE OSTRICH, WE BURY OUR HEADS IN THE SAND, WE MAKE THE PROCESS INVISIBLE FOR US. WHILE TEMPORARILY DESTROYING ONE OF THE LINKS, WE NOT ONLY LEAVE THE CAUSE OF THE PHENOMENON INTACT, BUT

EVEN STRENGTHEN IT, SINCE THE ACT OF OPERATIONAL INTERFERENCE IS ITSELF AN ADDITIONAL NERVE TRAUMA. And we know that on relapse the process is frequently renewed on a much larger scale. The work of A. S. Vishnevsky, devoted to the treatment of spontaneous gangrene by neurotomy of the spinal nerves, brings forward convincing data testifying to the fact that THE USEFUL EFFECT OF OPERATIONS IS THE MORE CLEAR AND LASTING, THE LESS THE EXTENT OF SURGICAL INTERFERENCE. Repeated neurotomy resulted as a rule in marked aggravation both of the gangrenous symptoms and of the general state of the patient."

Page 175.

"We saw that *nerve trauma* usually leads to *unilateral or symmetrical dystrophy* and that the difference *depends chiefly on the magnitude* of the irritation. THERE IS REASON TO THINK THAT THE SAME CAUSE CAN ALSO GOVERN THE DEVELOPMENT OF THE PROCESS OUTSIDE THE LIMITS OF THE SEGMENT PRIMARILY AFFECTED."

Page 176.

"It always happens that only some of the cells are altered. GREAT INTEREST ATTACHES TO PREPARATIONS WHERE, OF TWO NERVE CELLS LYING SIDE BY SIDE, ONE HAS SUFFERED SO STRONGLY THAT IT MUST BE CONSIDERED DEAD, WHILE THE OTHER HAS AN ABSOLUTELY NORMAL APPEARANCE. SUCH CASES ARE NOT RARE. THEY DEMONSTRATE ONCE AGAIN THAT WE ARE CONFRONTED BY A COMPLEX PROCESS WHICH CANNOT BE VIEWED MERELY AS THE RESULT OF THE IMMEDIATE INFLUENCE OF THE FOREIGN AGENT ON EACH ELEMENT IN PARTICULAR. IN THAT CASE IT WOULD BE ABSOLUTELY INEXPLICABLE WHY ONE CELL WAS KILLED WHILE A NEIGHBORING CELL, SITUATED ONLY A FEW MICRONS AWAY, DID NOT EVEN SUFFER. The destruction of the cell becomes comprehensible provided that it is recognized that its cause is the distortion of the relations between this cell and other nerve elements that have changed their function under the influence of irritation."

Page 180.

"THIS LED US TO THE SUPPOSITION THAT THERE MUST EXIST A SPECIAL HITHERTO UNKNOWN, MECHANISM OF GENERAL SIGNIFICANCE FOR THE CENTRAL NERVOUS SYSTEM. A CHEMICAL 'BLOW' TO ONE NERVE CAUSES THE WHOLE SYSTEM, AS IT WERE, 'TO PUT ITSELF ON GUARD' AND TO DEVELOP A NUMBER OF BARRIERS ON PATHS ALONG WHICH THE HARM ITSELF HAS NOT YET TRAVELED. THIS FACT ALONE IS EVIDENCE THAT THE PATH THROUGH THE NERVE TRUNK TOWARDS THE CENTRE IS THE PATH OF ACTUAL DANGER."

Page 182.

"Hence, the above-described method seemed to show that after trauma of the spinal nerve with croton oil the morphological changes in the central nervous system of the rabbit could be even less intense than those in the ganglia of the sympathetic chain. These changes were exhibited in the form of oedemata and hemorrhage. At the same time, the elements of the spinal cord do not exhibit any morphological departures from the normal state. Here the matter is limited to a certain increase in permeability of the 'bar-

rier,' which can be judged by the occurrence of trypan blue in the medullary membranes and adventitious spaces of the blood vessels of the segments affected. More pronounced changes in the spinal cord usually set in later on.

"It is worth while dwelling on this fact. It is beyond question that the origin of the phenomena described is *not connected with the movement of the irritating agent itself* along the nervous system and its direct action on each of the affected elements; indeed, after chemical trauma of the spinal nerve, the sympathetic ganglia suffered destruction not only on the side of the trauma, *but also on the opposite, 'healthy' side*. Moreover, in these ganglia the changes developed in general even more rapidly than in the elements of the spinal cord. But the path for the penetration of the harmful influence to the latter lies open through the nerve spaces; AS REGARDS THE GANGLIA, HOWEVER, WE KNOW NEITHER THE PATHS OF TRANSMISSION NOR THE FORCES CONTROLLING THE MOVEMENT ALONG THEM."

Pages 185-186.

"WHATEVER THE PROPERTIES POSSESSED BY THE IRRITATING AGENT AND HOWEVER ISOLATED THE PLACE OF ITS APPLICATION MAY APPEAR TO BE, THE CONSEQUENCES EXPRESS THEMSELVES IN A NUMBER OF NERVE STRUCTURES WHICH HAVE NEVER BEEN IN DIRECT CONTACT WITH IT. THERE IS NO STRICT LOCALIZATION OF THIS PROCESS WITHIN THE LIMITS OF A PARTICULAR PART OF THE NERVOUS SYSTEM, SINCE THE IRRITATION PASSES FROM THE ELEMENTS OF THE CENTRAL NERVOUS SYSTEM TO THE SYMPATHETIC SYSTEM AND BACK AGAIN."

Page 192.

"In this way, *our conception of segmentary affections of the nervous system* becomes more precise. It is not a question of formally delimited segments of the spinal cord. We saw that, *after trauma of the spinal nerve, alterations are to be discovered almost from the very start in the ganglia of the sympathetic chain, not only on the side of the injury, but also on the opposite, 'healthy' side*. Thus, the conception of the segment includes also its sympathetic portion. The subsequent data demonstrate that NERVE PARTS WITHIN THE ORGANS ALSO HAVE A DEFINITE ORDER in which they are included in the process, and that this order is connected with the point of primary irritation."

Pages 192-193.

"THE IMMEDIATE IRRITATION BY THE FOREIGN AGENT, IN SPITE OF ITS UNUSUAL CHARACTER, DID NOT KILL THE NERVE CELLS. IT MERELY ALTERED THEIR FUNCTION. THE ALTERATIONS OF THE NORMAL NERVE FUNCTION, HOWEVER, RESULTED IN THE DISEASE AND EVEN DEATH OF TISSUE ELEMENTS AT THE PERIPHERY.

"THUS, THE NERVE TRAUMA BY ITSELF DOES NOT CONSTITUTE THE DIRECT CAUSE OF NERVOUS DYSTROPHY FROM START TO FINISH. IT MERELY GIVES THE IMPULSE TO THE DEVELOPMENT OF A PROCESS WHICH SUBSEQUENTLY PROCEEDS CUMULATIVELY. Hence, changes arising secondarily in the sympathetic system can later prove to be both more dangerous and more severe.

"The facts brought forward have, in addition, a significance from the point of view of method. IN INVESTIGATING NERVOUS FUNCTIONS, THE METHOD OF IRRITATION AND EXCLUSION PLAYS A FUNDAMENTAL ROLE. THE DISAPPEARANCE OF A PARTICULAR REACTION, ON THE ONE HAND, OR THE EXHIBITION OF IT, ON THE OTHER, IS CONSIDERED AS A POSITIVE PROOF THAT THIS REACTION IS CONNECTED WITH THE DEFINITE GROUP OF NERVE ELEMENTS WHICH WERE THE OBJECT OF IMMEDIATE INTERFERENCE. For elementary reactions and short periods of observation, such an attitude is permissible, although with reservations. If, however, we are dealing with a complex process, the external manifestations of which begin only after a certain, often rather prolonged period, then it is impossible to judge of its localization merely by data relating to the place of primary interference. A MUCH GREATER ROLE MAY BE PLAYED HERE, NOT BY THE PART WHICH HAS BEEN SUBJECTED TO IRRITATION, BUT BY THE ACT OF INTERFERENCE ITSELF, WHICH BECOMES THE ORIGINATOR OF A WHOLE GROUP OF NEW PROCESSES. IF, IN THE EXPERIMENTS JUST ANALYSED, WE WERE TO LEAVE THE ACT OF INTERFERENCE OUT OF ACCOUNT, WE WOULD HAVE TO ASCRIBE ITS CONSEQUENCES (THE RETARDATION, INTENSIFICATION AND NEW RETARDATION OF THE TETANUS SYMPTOMS) TO ONE AND THE SAME OBJECT, VIZ., THE SYMPATHETIC GANGLIA THEMSELVES. THE RESULT WOULD BE THE FALSE NOTION THAT THEY ARE INCLUDED IN THE SPECIFIC PART OF THE REACTION, WHICH IS ACTUALLY NOT THE CASE.

"One cannot help recalling here our experiments on epilepsy, described earlier in the book. Externally similar procedures produced different consequences, while, on the other hand, DIFFERENT FORMS OF INTERFERENCE YIELDED ONE AND THE SAME RESULT. In the clinic, for example, this is illustrated by cases of traumatic epilepsy, where both repeated closure of the bone defect and repeated removal of the transplanted bones in one and the same patient has a curative effect on each occasion *but the effect is always temporary.*

"Consequently, on chemical or infectional nerve trauma, a number of different processes of a physiological and pathological character develop in the nervous system. The former are beneficial, the latter find expression in dystrophic symptoms, both within the nervous system AND IN THE PERIPHERAL TISSUES. THE DYSTROPHIC PROCESSES TAKE A CYCLIC COURSE AND MAY END IN THE COMPLETE RESTORATION OF NORMAL CONDITIONS. But in a number of cases they develop progressively. Commencing in the region of a particular nerve segment, *they soon pass outside its limits, embrace other portions of the complex nerve network and culminate in general dystrophy and the death of the animal.*"

Pages 193-194.

"These and similar observations caused us to endeavor to widen the scope of the work, operating not only on the nerve trunks but also on other parts of the nervous system. OUR ATTENTION WAS NATURALLY FIRST GIVEN TO THAT PART OF THE BRAIN WHICH IS NOW DENOTED BY

THE TERM HYPOTHALAMUS. This region is considered to be THE HIGHER CENTER OF VEGETATIVE NERVE FUNCTIONS. HERE ARE TO BE FOUND THE REGULATORY CENTRES OF WATER, SALT, PROTEIN, FAT AND CARBOHYDRATE METABOLISM, OF THE CIRCULATORY SYSTEM OF THE ORGANS OF INTERNAL SECRETION, ETC. Disease or injury of the hypothalamus may result also in disorganization in the motor sphere, including even epileptic attacks (Cushing). This region is regarded by some as that of the localization of the 'sleep centre.'

"Even the earliest investigators, Schiff and Brown-Sequard, in cases of injury to the intermediate and middle brain observed THE RESULTING DEVELOPMENT OF HEMORRHAGES IN THE RESPIRATORY AND DIGESTIVE ORGANS. The same thing is described by many writers who studied the effect of so-called heat puncture. N. N. Burdenko and B. N. Mogilnitsky observed the development of hemorrhages and ulcerations in the stomach of dogs in which the part of the hypothalamus behind the infundibulum had been destroyed.

"THERE IS NO DOUBT, THEREFORE, THAT THESE REGIONS OF THE BRAIN ARE CONNECTED WITH MANY FUNCTIONS OF THE ORGANISM WHICH COULD BE COMBINED IN THE WORD 'TROPIC'. I shall not give the whole history of the subject. *Questions relating to it are in the forefront of attention at the present time*, and the basic facts are widely known. Moreover, we are not interested for the moment in isolated facts concerning the physiology and pathology of this particular area of the nervous system, the more so because formal data concerning localization can hardly be of use to us in obtaining a conception of the course of the dystrophic process within the nervous system. THE TASK WAS TO ELUCIDATE THE FORM OF DEVELOPMENT OF THE DYSTROPHIC PROCESS WHEN THE REGION OF THE HYPOTHALAMUS, IN PARTICULAR THE TUBER CINEREUM AND SUBSTANTIA PERFORATA POSTERIOR FORMED THE POINT OF PRIMARY IRRITATION."

Page 201.

"IT FOLLOWS THAT THE PROCESSES OCCURRING AS THE DIRECT CONSEQUENCE OF THE OPERATION SERVED ONLY AS AN IMPULSE FOR SOME THIRD PROCESS, WHICH WAS EXTERNALLY MANIFESTED BY TISSUE DYSTROPHY. BUT IN THAT CASE WE ARE JUSTIFIED IN ANTICIPATING THAT MANY OTHER FORMS OF NERVE IRRITATION ALSO, ARISING PERHAPS FROM VERY REMOTE POINTS OF THE NERVOUS SYSTEM, WILL PRODUCE THE SAME PICTURE OF PERIPHERAL DISTURBANCES. IT IS ONLY NECESSARY THAT THE APPROPRIATE MECHANISMS SHOULD BE INVOLVED IN THE ORBIT OF THE PROCESS DEVELOPING WITHIN THE NERVOUS SYSTEM."

Page 215.

"KNOWING THAT THIS DISORGANIZATION ONLY REFLECTS ANOTHER PROCESS PROCEEDING WITHIN THE NERVOUS SYSTEM, WE ARE JUSTIFIED IN ASSERTING THAT THIS LATTER PROCESS WAS APPROXIMATELY THE SAME IN ALL THE CASES."

Page 217.

"THEY ONCE MORE CONFIRM THE THESIS THAT ANY PORTION OF THE NERVOUS SYSTEM CAN BECOME THE STARTING POINT FOR PROCESSES OF A NEURO-TROPHIC CHARACTER." Page 221.

"FACTS OF THIS NATURE MUST BE WELL BORNE IN MIND. IT IS IMPOSSIBLE TO DECIDE THE QUESTION OF THE HARMFULNESS OR NON-HARMFULNESS OF A PARTICULAR SUBSTANCE MERELY ON THE BASIS OF DATA ON THE DIRECT EFFECTS OR IMMEDIATE CONSEQUENCES. THE STRENGTH OF THE IRRITATING AGENT IS THE SUM OF MANY PROCESSES DEVELOPING ONE AFTER ANOTHER, AND THEY MUST ALL BE TAKEN INTO ACCOUNT TO THE END, i.e., TO THE MOMENT OF ACTUAL EXTINCTION OF ALL THE PHENOMENA. THEN IT MAY PROVE THAT THE HARMFULNESS OF AN IRRITATING AGENT, THE ORIGINAL ACTION OF WHICH IS WEAK, IS IN THE LONG RUN NOT LESS AND MAY POSSIBLY EVEN BE GREATER THAN THAT OF A STRONG ONE." Page 222.

"WEIGHING UP ALL THE MATERIAL MENTIONED, IT IS DIFFICULT TO SUPPOSE SPECIAL PECULIARITIES IN THE MECHANISM OF ORIGIN OF EACH CASE. THIS MECHANISM IS A NERVOUS MECHANISM, AND THE CHANGES IN THE ORGANS ARE INDIRECT." Page 223.

"IN THE FIRST PLACE, IT IS NECESSARY TO RECOGNIZE AT LEAST THE ROLE OF THE NERVOUS SYSTEM AS THE ORGANIZER OF PERIPHERAL PATHOLOGICAL FOCI, SINCE THE ORDER IN WHICH ORGANS AND TISSUES ARE AFFECTED IS OFTEN MERELY THE REFLECTION OF THE DYSTROPHIC PROCESS PROCEEDING WITHIN THE NERVOUS SYSTEM.

"As already mentioned more than once, the study of the matter from this point of view showed us that THE INCUBATIONAL OR LATENT PERIOD IS ONE IN WHICH THE PROCESS DEVELOPS IN A HIDDEN FORM WITHIN THE NERVOUS SYSTEM. IN JUDGING THE GENESIS OF LOCAL PATHOLOGICAL FOCI, THIS IS THE FIRST THING THAT MUST BE TAKEN INTO ACCOUNT." Page 224.

"We can count on obtaining a constant effect only when studying more elementary reaction, such, for instance, as contraction of a muscle separated from the organism, secretion of an isolated gland, etc.; WHEREAS IN STUDYING THE SAME REACTIONS WITHIN THE ORGANISM WE ARE DEALING WITH ONE OF THE FUNDAMENTAL PROPERTIES OF THE NERVE CELL—THE PROPERTY OF SUMMATION. THE HIGHER WE GO UP THE LADDER OF COMPLICATION OF REFLEXES, THE GREATER THE DIFFERENCE WILL BE.

"THIS BECOMES ESPECIALLY CLEAR IN THE CASE OF HIGHER NERVOUS ACTIVITY. THE COMPLEXITY OF CONDITIONED REFLEXES AND THE VARIABILITY OF THE NEURAL COMBINATIONS COMPOSING THEM HAVE THE RESULT THAT THE EFFECT OF ONE AND THE SAME IRRITATION CAN BE DIFFERENT, BOTH IN QUANTITY AND IN QUALITY. THE RESULTS OF EXPERIMENTS, AFTER

THE MOST ACCURATE EQUALIZATION OF ALL EXTERNAL CONDITIONS, ARE HERE OFTEN SO VARIABLE, THAT IN ORDER TO SYSTEMATIZE THEM IT HAS BEEN NECESSARY TO CREATE A WHOLE THEORY OF TYPES OF NERVOUS CONSTITUTION IN DOGS."

Pages 225-226.

"In our experiments, we have a fourth variety of nervous activity; this activity is peculiar in function and purpose, but takes place under the same conditions as the first three, viz., the 'conditioned reflex', the 'dominant', the 'readiness' of Magnus. THIS DEMONSTRATES ONCE AGAIN THAT NOT ONLY THE BASIC PRINCIPLES OF CONSTRUCTION OF THE NERVOUS SYSTEM, BUT EVEN THE DETAILS OF THE FUNCTIONING OF ITS VARIOUS PARTS, HAVE MUCH IN COMMON AND ARE LINKED BY A COMMON PLAN.

"THE DYSTROPHIC PROCESS ARISING WITHIN THE NERVOUS SYSTEM is capable sometimes of subsiding completely without leaving lasting traces behind it. Sometimes, however, it is preserved in a latent form, and then the application of any new stimulus may call it into life. In the peripheral tissues, there will be a reproduction of the reaction, corresponding in dimensions and form to the process which had already taken place there. WE MAY ENCOUNTER IN THIS WAY VASCULAR PHENOMENA (OEDEMA), OR INFLAMMATORY PHENOMENA (CERATITIS), DESTRUCTIONS (NOMA, GANGRENE, ULCER), NEW FORMATIONS (PAPILLOMATA), THAT IS TO SAY, IN THE FINAL ANALYSIS, ALL THE FORMS OF LOCAL PATHOLOGICAL PROCESSES KNOWN TO US. ACQUAINTANCE WITH THIS CATEGORY OF PHENOMENA TURNS UPSIDE DOWN ALL THE OLD CONCEPTIONS OF THE GENESIS OF LOCAL PATHOLOGICAL PROCESSES, SHATTERS A NUMBER OF THE NOTIONS CREATED BY CELLULAR PATHOLOGY, AND CASTS DOUBT ON THE ACTUAL VALUE OF CLASSIFYING DISEASES ACCORDING TO THE ORGANS AND SYSTEMS OF THE BODY. AS A MATTER OF FACT, WHO WOULD HAVE BELIEVED, EVEN RECENTLY, THAT IT IS POSSIBLE TO BLIND A DOG BY ACTING UPON THE SCIATIC NERVE OR TO KILL AN ANIMAL THROUGH THE PULP CAVITY OF THE TOOTH, PRODUCING INTESTINAL HEMORRHAGE BY MEANS OF ONE DROP OF FORMALIN, TWO OR THREE MONTHS AFTER NOT ONLY THE FORMALIN, BUT THE TOOTH ITSELF HAD BEEN REMOVED. UNDOUBTEDLY, THIS ALSO STRIKES A BLOW AT THE STANDING CONCEPTION OF THE SO-CALLED AETIOLOGY OF DISEASES. Scores of extremely diverse irritations, applied at various points of the organism, may in the final result bring about the same consequences. On the other hand, externally identical influences may turn out to produce differing results. We observed this in all our experiments with a second nerve blow. Trauma of the sciatic nerve sometimes produces trophic ulcers of the hind extremities and sometimes papillomatosis of the mucous membrane of the mouth. The operation with the glass sphere acts approximately in the same way. If we had not known in advance the history of each of our animals, the effects produced might have seemed chaotic and fortuitous.

"We are now coming to the question of *qualitative variations of nervous dystrophy*. The study of these variations is possible either when the primary irritation is comparatively weak, or when the nervous system of the animal employed in the experiment is more than usually stable. If the process has gone beyond the limits of definite nerve groups and definite nerve combinations, then its generalization proceeds in standard forms. With weaker degrees of the process, the individual peculiarities of the given nervous system have an opportunity to manifest themselves. These individual peculiarities can be compared with a multitude of nodes scattered throughout a complex network, where all the parts are joined so as to form a unity. EACH NEW NODE THAT IS ADDED TO THIS PLEXUS ALTERS THE TONUS OF SEPARATE PARTS AND OF THE WHOLE NETWORK. The formation of the nodes is bound up with an endless number of causes and the presence of every node in the network may be temporary or permanent. They may not become manifest during a long period, and afterwards find expression in a sudden deviation from the usual reaction. To foresee these deviations even in part, it is necessary to know the history of each individual nervous system. This is the reason *why in our experiments we are of late feeling more and more the difficulty of choosing suitable animals as controls*. HERE WE HAVE A CONCRETE APPLICATION OF THE MOTTO OF THE GREAT PHYSICIANS OF THE PAST: 'There are no illnesses, there are only ill people.'"

Pages 228-229.

"1. For the development of dystrophic symptoms in the nervous system it is not essential that the point of primary irritation should be a nerve trunk or nerve ganglion. The changes produced in the nervous system by the irritation of nerve-endings within the peripheral tissues (skin, cellular tissue, muscles, etc.) can be quite as severe as those due to the direct injury of complex nerve structures."

Page 233.

"3. AT ANY POINT OF THE NERVOUS SYSTEM, A PROCESS CAN COMMENCE WHICH FINALLY RESULTS IN THE PHENOMENA OF GENERAL DYSTROPHY IN THEIR STANDARD FORMS."

Page 233.

"THE GREATER THE IRRITATION, THE MORE DIFFICULT IT IS TO TRACE ANY ORDER IN THE COURSE OF ITS DEVELOPMENT; BUT THIS BY NO MEANS SIGNIFIES THAT THERE IS NO SUCH ORDER."

Page 233.

"AT THE SAME TIME, ANOTHER AIM WAS ALSO KEPT IN VIEW HERE, VIZ., THE SOLUTION OF THE OLD CONTROVERSY CONCERNING THE ROLE OF THE NERVOUS SYSTEM IN THE PROCESS OF INFLAMMATION."

Page 233.

"THE PART PLAYED IN THESE PHENOMENA BY THE NERVOUS SYSTEM WAS IGNORED OR EVEN CATEGORICALLY DENIED. But the reality of experimental evidence does not tolerate the asseverations of arm-chair science, AND THE CLINIC IS RAISING ANEW THE QUESTION OF THE ROLE OF THE NERVOUS SYSTEM IN THE PROCESS OF INFLAMMATION.

"In 1906, Spiess drew attention to the fact that the use of anesthetics in some cases of acute inflammation not only alleviates the course of the process, but sometimes interrupts or prevents it. HE REGARDED THE REFLEX NERVE IMPULSE PRECEDING INFLAMMATION AS THE BASIC FACTOR. According to his observations, removal of this primary factor altered the whole character of the subsequent inflammation. Spiess's observations have been confirmed by other investigators." Pages 233-234.

"At the same time, A. G. Molotkov published a number of clinic observations on the history of certain inflammatory processes after severance of the corresponding nerves. On the basis of his material, he arrived at the conclusion of the prime significance of the nervous system in the genesis of these processes." Page 234.

"At the present time, I repeat, things have become more tranquil on this front, BUT IT IS NOT BECAUSE THE QUESTION OF THE ROLE OF THE NERVOUS SYSTEM IN THE PROCESS OF INFLAMMATION HAS ACTUALLY BEEN SETTLED. EVEN NOW, THE LOCAL INFLAMMATORY FOCUS IS LOOKED UPON AS SOMETHING INDEPENDENT, GOVERNED BY ITS OWN SEPARATE LAWS; EVEN NOW, THE PROCESS OF INFLAMMATION IS EXPLAINED AS A RESULT OF THE CAPACITY OF LOCAL TISSUE ELEMENTS TO REACT DIRECTLY TO THE IRRITATING AGENT. ALTOGETHER, THE QUESTION OF THE ROLE OF THE NERVOUS SYSTEM IN INFLAMMATION IS SO UNPOPULAR THAT, FOR EXAMPLE, THE CHAPTER ON INFLAMMATION IN TEXT BOOKS SIMPLY PASSES IT OVER IN SILENCE.

"AS FAR AS PURELY SCIENTIFIC ARTICLES ARE CONCERNED, THEY ALSO TREAT THE QUESTION TIMIDLY. THE NERVOUS COMPONENT OF THE INFLAMMATORY REACTION IS ADMITTED AS AN AUXILIARY FACTOR CAPABLE OF EXERTING AN INFLUENCE INDIRECTLY, AND ONLY ON THE COURSE OF THE INFLAMMATION, BUT NOT BY ANY MEANS ON ITS GENESIS.

"Until recently, moreover, formalism has also prevailed in regard to methods of work. The basic task has been the study of inflammation in denervated tissues. A great deal of labour has been expended on this, *and in general without result*, since neither INTERRUPTION of spinal or sympathetic paths, nor EXTIRPATION of nerve ganglia is able to entirely REMOVE nerve elements and nerve INFLUENCES in the tissues. THESE INFLUENCES CAN BE PARTLY EXERTED ALONG THE NEURO-HUMORAL PATH and also through local axon-reflexes (Langley) AS HAS ALREADY BEEN ESTABLISHED FOR INFLAMMATORY PROCESSES IN A NUMBER OF WORKS OF BRUCKE, ALPERN AND OTHERS.

"In our experiments, we approached the subject from another aspect. While pursuing the aim of studying THE ROLE PLAYED BY THE NERVOUS SYSTEM IN THE DEVELOPMENT AND HISTORY OF INFLAMMATION, we at the same time began to investigate the role played by inflammation in the functioning and state of the nervous system.

"In a complex organism, INFLUENCES ARE RECIPROCAL. Moreover, inflammation as such is *not a constant* phenomenon. We have here a manifold mobile substratum, and the factor of time, in the course of which the process continuously changes. During this time, a series of different events connected IN SOME WAY with one another, take place both IN PROXIMITY TO AND FAR AWAY FROM the local focus. BY ANALYZING BOTH ASPECTS OF THE PHENOMENON, WE COULD EXPECT TO OBSERVE WHAT HAD BEEN PREVIOUSLY CONCEALED.

"At one period, we attempted to carry on this work just as all the others had done, in particular Shimura. The method consisted in attempts TO EXCLUDE FROM A DEFINITE REGION THE POSSIBILITY OF NERVE ACTION ON THE INFLAMMATORY PROCESS. The results of the experiments, in their external aspects, were closely analogous to the results obtained by Shimura; for us, however, they did not represent a categorical solution of the problem.

"WE HAVE SEEN THAT THE INFLAMMATORY PROCESS IN THE TISSUES EVOKES DYSTROPHIC SYMPTOMS WITHIN THE NERVOUS SYSTEM AND BY MEANS OF THEM RETURNS TO THE PERIPHERY IN THE FORM OF VARIOUS SORTS OF LOCAL CHANGES. These reflected processes are often symmetrical, BUT THEY MAY BE SITUATED ALSO OUTSIDE THE LIMITS OF THE SEGMENT PRIMARILY AFFECTED, THE BASIC CAUSE FOR THEIR FORMATION IS THE DESTRUCTION OF NORMAL NERVE CONDITIONS, IN A DEFINITE TISSUE REGION, CONNECTED BY A CHAIN OF NERVE LINKS WITH THE ORIGINATOR OF THE WHOLE PROCESS, i.e., WITH THE PRIMARY FOCUS. It is evident from this that even in the primary inflammatory focus ONLY THE FIRST STEPS can be looked upon as THE IMMEDIATE RESULT of the encounter of the tissues with the foreign agent. After a short time, the direct action of the irritating agent itself IS SUPPLEMENTED BY AN ADDITIONAL FACTOR OF IRRITATION ON THE PART OF THE CORRESPONDING NERVE STRUCTURES.

"FROM THIS MOMENT, THE GENERAL PICTURE AND HISTORY OF THE PRIMARY PROCESS ITSELF CEASES TO BE CONFINED WITHIN THE BOUNDS OF LOCAL CONDITIONS AND PARTIAL LAWS, AND IT IS ABSOLUTELY UNKNOWN WHICH OF THE TWO BASIC COMPONENTS OF THE IRRITATION WILL GAIN THE UPPER HAND AT ANY PARTICULAR MOMENT.

"BY BRINGING IN THIS WAY THE INFLAMMATORY PROCESS AND NERVOUS DYSTROPHY INTO CLOSE RELATION WITH ONE ANOTHER BY MEANS OF THE NERVOUS COMPONENT, WE OBTAINED A NEW FIELD FOR EXPERIMENT AND HAD A JUSTIFICATION FOR EMPLOYING PATHOGENIC MICRO-ORGANISMS TO EXCITE, NOT ONLY INFLAMMATORY SYMPTOMS, BUT ALSO NEURO-DYSTROPHIC PROCESSES. IN THE NEW FORM OF WORK, THE MICROBES AS IRRITATING AGENTS HAVE THE FURTHER ADVANTAGE OVER CHEMICAL AND PHYSICAL AGENTS THAT THEY ARE NOT SO EASILY WASHED OUT OF THE TISSUES."

Pages 235-236.

"THIS FACT IS VERY NOTEWORTHY. THE VIRUS, WHEN INTRODUCED INTO THE ORGAN ITSELF, PROVES TO BE ALMOST INDIFFERENT TO IT. THE SAME VIRUS HAS ONLY TO BE CAUSED TO ACT EXTERNALLY FOR THE IMMUNE ORGAN TO LOSE ITS RESISTANCE AND TO DEVELOP SIGNS OF SEVERE INFLAMMATION. THE MICROBE ALONE IS NOT A SATISFACTORY EXPLANATION FOR SUCH A PHENOMENON!" Page 238.

"OUR STUDY OF THE STANDARD FORMS OF NERVOUS DYSTROPHY HAD SHOWN US THAT THE SELECTIVE AFFECTATION OF CERTAIN POINTS OF THE GASTRO-INTESTINAL CANAL IS DUE TO NERVOUS INFLUENCES; WHEN WE TESTED THE SAME POINTS FOR THE DEGREE OF THEIR REACTIVITY IN THE PROCESS OF INFLAMMATION, HERE ALSO THEY STOOD OUT QUITE DISTINCTLY. HENCE, THE CONNECTION BETWEEN THE TWO PROCESSES IS AT ONCE APPARENT.

"The supposition arose that not only the intensity of the local inflammatory reaction (for instance, of the stomach) but also the extension of the process outside these limits, with the development of extensive peritonitis, IS DEPENDENT ON NERVOUS INFLUENCES. IF THE PECULIAR REACTION OF A GIVEN POINT DEPENDS ON THE PECULIARITY OF ITS NERVOUS CONNECTIONS, it ought to be sufficient to alter these connections by some means or other for the reaction to be altered." Page 238.

"IT MUST BE REMEMBERED THAT THE OBJECT ACTED ON IS THE NERVOUS SYSTEM. Influences exerted on it can remain local (i.e., disappear without going beyond the simple reflex arc) only in cases of so-called physiological stimuli, and even then only if the intensity of the stimulus does not exceed a certain degree. Unusual forms of stimulation bring into action a number of nerve mechanisms. INHIBITING SOME FUNCTIONS, WE EXCITE OTHERS, WE DISTORT THEIR NORMAL COURSE OF DEVELOPMENT, WE TRANSFER THE PROCESS INTO NEW NERVE REGIONS. One must add here also those individual peculiarities which, left behind in the form of traces of past stimuli, CAN ALTER BOTH THE DIRECTION AND STRENGTH OF STIMULI NEWLY ENCOUNTERED. To be able to foresee the result with certainty, one must have a good acquaintance with the substratum, BUT THE LATTER IS DIFFERENT IN DIFFERENT ANIMALS AND MOREOVER, IS CONTINUALLY CHANGING. THIS IS THE REASON WHY THE FACTOR OF TIME STANDS OUT SO CONSPICUOUSLY IN OUR EXPERIMENTS.

"Hence, in estimating the results of the experiments with intra-peritoneal inoculation after vagotomy of rabbits, WE MUST CONNECT THEM not only with section precisely of the n. vagi BUT ALSO WITH THE FACT OF THE DESTRUCTION OF THE NORMAL STATE OF THE NERVOUS SYSTEM AS A WHOLE, PARTICULARLY IN THE GIVEN REGION. AFTER SEVERANCE OF THE NERVES, THE ORGAN IS CHANGED." Page 241.

"Experiments with section of the vagus nerve provide grounds for thinking that this difference is connected with neuro-dystrophic processes which

are produced more easily at the point indicated, and, combining with the inflammation, aggravate the latter to a marked degree.

"TO MAKE THE NERVOUS COMPONENT OF THE INFLAMMATION EVIDENT IN THE GIVEN CASE, IT WAS NECESSARY TO PRODUCE AT THE SAME POINTS ANOTHER PROCESS OF AN UNDOUBTEDLY NERVOUS CHARACTER, BUT WHICH WOULD BE NEITHER A PURE INFLAMMATION NOR A PURE DYSTROPHY." Page 244.

"The correctness of this idea is doubtful. IN THE FIRST PLACE, IT IS NOT AT ALL ESSENTIAL FOR IRRITATION OF THE CORRESPONDING NERVE STRUCTURES THAT THEY SHOULD BE BROUGHT INTO IMMEDIATE CONTACT WITH ANY PARTICULAR IRRITATING SUBSTANCE. In the part of this book dealing with the genesis of convulsive processes, many examples were described of fatal convulsive states developing in dogs that possessed a constant point of irritation WITHIN THE NERVOUS SYSTEM as a result of maximal extraction of the cerebro-spinal fluid." Page 246.

"THE PROCESS TAKES PLACE AT THE NERVE PERIPHERY, WHICH BECOMES CHANGED IN A SPECIAL WAY AND INVOLVES CENTRAL PARTS OF THE NERVOUS SYSTEM IN THE REACTION, NOT THROUGH THE SPREADING OF THE IRRITATING AGENT TILL IT REACHES THESE PARTS, BUT THROUGH THE IRRITATION." Page 147.

"THE LOCAL INFLAMMATORY PROCESS, AND WITH IT THE FATE OF THE ORGANISM, IS THEREFORE, UNDOUBTEDLY DEPENDENT ON THE FORM IN WHICH THE NERVOUS SYSTEM IS DRAWN INTO THIS PROCESS AND THE EXTENT TO WHICH THIS TAKES PLACE. IT IS IMPOSSIBLE TO CONSIDER THE INFLUENCE OF THE NERVOUS SYSTEM HERE AS MERELY NEGATIVE." Page 247.

"UNDER CERTAIN CONDITIONS, ALTERATION OF THE NERVOUS STATE OF AN ORGAN RESULTED IN THE INFLAMMATORY PROCESS TAKING A FAVORABLE TURN. BUT IN THAT CASE, ONE MUST ALSO PRESUME THE PRESENCE OF INFLUENCES ON THE NERVOUS SYSTEM IN ALL OTHER MEANS OF TREATMENT AND PROPHYLAXIS OF INFLAMMATION. Hence, an experimental solution of this problem was of great interest." Page 248.

"THUS, THE ANTI-VIRUS PROVED CAPABLE OF EVOKING LOCAL IMMUNITY ONLY IN TISSUES IN WHICH THE NERVE STATE WAS NORMAL. THE DESTRUCTION OF THE NERVES RADICALLY ALTERED THE WHOLE REACTION." Page 249.

"IMMUNIZATION OF LOCAL ELEMENTS WAS NOT OBTAINED BY THE USE OF ANTI-VIRUS UNLESS THE NORMAL NERVE CONNECTIONS OF THE ORGAN WERE PRESERVED. SEVERING THEM CREATED CONDITIONS PREVENTING THE DEVELOPMENT OF IMMUNITY; CONSEQUENTLY IT MUST BE ADMITTED THAT THE NERVOUS SYSTEM HAS THE POWER TO DESTROY INFLAMMATION. IT WOULD BE STRANGE IF IT COULD FULFIL THIS FUNCTION WITHOUT PLAYING ANY PART IN THE PROCESS ITSELF!" Page 249.

"There is only one conclusion to be drawn: WE ARE FAR FROM KNOWING everything about the intricate morphological and functional complex of inflammation. Being our estimate of a phenomenon ON SOME EXTERNAL CHARACTERISTICS, WE LOST SIGHT OF THE OTHERS, and as a result OUR KNOWLEDGE IS INCOMPLETE. EACH YEAR BRINGS NEW FACTS IN THE SPHERE OF NERVOUS PHYSIOLOGY AND MORPHOLOGY. Many of them can only with difficulty be inserted into the framework of old conceptions; some of them indeed, for instance the experiments of Paul Weiss, ARE ALTOGETHER INCOMPATIBLE WITH THE REST.

"IN DEALING WITH THE SEVERANCE OF NERVES, IT MUST NOT BE FORGOTTEN THAT THE SEVERED FIBRE BUNDLES ARE NOT ALL EQUIVALENT. Thus denervation of the ear in the rabbit produces a quite different result from cutting the vagus branch to the stomach. OUR INFORMATION ABOUT THE VAGUS NERVE IN GENERAL IS VERY ELEMENTARY."

Pages 249-250.

"REGENERATION OF THE PERIPHERAL NERVE STUMP WAS ESPECIALLY CLEARLY MARKED IN DOLGO-SABUROV'S EXPERIMENTS IN REGARD TO THE ABDOMINAL REGION OF THE VAGUS. THIS WORK IS ONLY IN ITS EARLY STAGES, BUT IT PROMISES TO ALTER RADICALLY OUR CONCEPTIONS OF THE MORPHOLOGY AND PHYSIOLOGY OF THIS NERVE, WHICH ITSELF IS A COMPLEX PART OF THE NERVOUS SYSTEM.

"HENCE, IT IS NOT SURPRISING THAT IT IS MORE DIFFICULT TO ESTABLISH THE DEPENDENCE OF INFLAMMATION ON NERVE INFLUENCES BY EXPERIMENTING ON THE EAR OF THE RABBIT THAN ON PARTS OF ITS GASTRO-INTESTINAL TRACT. If Shimura had only transferred his experiments to another region of the nervous system, his NEGATIVE CONCLUSION AS TO THE ROLE OF THE LATTER IN THE INFLAMMATORY PROCESS WOULD HAVE BECOME LESS CATEGORICAL."

Page 250.

"WHETHER THE PENETRATION OF THE ANTI-VIRUS INTO THE REGION OF THE CENTRAL NERVOUS SYSTEM PRODUCED A SPECIAL FORM OF IRRITATION OF THE LATTER OR NOT, THE FACT REMAINS THAT, AS A RESULT OF THE NERVE TRANSFORMATION CONNECTED WITH THIS, THE DEVELOPMENT OF INFLAMMATION AT THE PERIPHERY TOOK A DIFFERENT COURSE. FROM THIS WE ARE JUSTIFIED IN DRAWING THE CONCLUSION THAT THE NERVOUS COMPONENT OF THE INFLAMMATORY PROCESS IS A POSITIVE (PHYSIOLOGICAL) FACTOR."

Pages 251-252.

"DEFINITE SPECIAL FEATURES ARE TO BE NOTICED IN THE GENERAL PICTURE OF THE IRRITATION IN EACH CASE; BUT IN REGARD TO THE NERVOUS MECHANISM ALL THESE, EXTERNALLY SO DIVERSE, PHENOMENA HAVE SOMETHING IN COMMON WHICH UNITES THEM ALL.

"The extent of functional changes in the elements of the nervous system results in the primary inflammatory focus acquiring all the features of a secondary one that develops as the result of the generalization of the neuro-dystrophic phenomena. Microbes will occur in both the one and the other. In both cases they can be regarded as pathogenic, i.e., as contributing something to the process; THIS PROCESS, HOWEVER, MAY PROGRESS EVEN IN THEIR ABSENCE AND MAY TERMINATE FAVORABLY EVEN IN THEIR PRESENCE."

Page 253.

"Consequently, there must have been established in the organism some kind of permanent joints which continued to retain traces of the past injury. Temporary recovery was no evidence to the final liquidation of the process. Since the cause, not only of the original changes, but also of the relapse of the process and of the provocation of this relapse, LAY IN AGENCIES OF A NERVOUS NATURE, WHILE THE CHANGES THEMSELVES MERELY REFLECTED AT THE PERIPHERY ANOTHER PROCESS THAT DEVELOPED WITHIN THE NERVOUS SYSTEM, THE CONCLUSION FOLLOWED OF ITSELF. By this means, the real value and concrete content of the concept of sensibilization and also of the strange notion of 'dormant infection' could be estimated.

"For the tissues at the periphery to be in a state of continuous irritation, in a state of 'readiness' to pass into an obviously pathological condition, IT IS BY NO MEANS NECESSARY THAT THE IRRITATING AGENT SHOULD BE DEMONSTRABLY EXTERNAL, OR THAT IT SHOULD BE POSSIBLE TO FIND IT AMONG THE INJURED ELEMENTS, AND TO ISOLATE IT AND EXTRACT IT FROM THEM. In regard to this foreign agent, one must not demand obvious 'ocular' proofs. IN A FORMAL RESPECT, IT MAY EASILY REMAIN INVISIBLE, WHICH DOES NOT PREVENT IT FROM BEING ACTUALLY EXTERNAL IN REGARD TO THE TISSUES.

"The microbes that were discovered in chronic non-healing ulcers in our animals were secondary and accidental colonists. THEIR PRESENCE DID NOT INTENSIFY THE PROCESS, NOR DID THEIR REMOVAL ABOLISH IT. Nevertheless, these ulcers are nothing less than foci of chronic inflammation. One can easily convince oneself of this by carrying out the appropriate morphological analysis.

"HENCE, LOCAL DISTORTION OF THE NERVOUS INFLUENCES IS SUFFICIENT BOTH FOR GIVING RISE TO AND FOR MAINTAINING FOCI OF CHRONIC INFLAMMATION.

"However, a large number of examples are known in pathology where such foci have certain features which confer on them A SPECIAL OR, AS IS USUALLY SAID, SPECIFIC character. In such foci are always or almost always to be found definite, and not accidental, micro-organisms, to which, therefore, it is difficult to deny the role of responsible agents. One must mention here in the first place tuberculosis virus and *Spirochaeta pallida* of syphilis.

"In making experiments on animals with these, one obtains as is well known, local changes typical for the irritating agent used. In regard to tuberculosis, one further important circumstance has to be taken into account. At the present time, methods exist for infecting tissue cultures in vitro with tuberculosis (Timofeyevsky, Maksimov and others). The disease develops in the absence of any nervous influences. AN IMPRESSION IS CREATED that not only the tuberculosis disease itself but also the form of reaction to it are independent processes having no sort of connection with the functions of the nervous system.

"BUT WHEN WE TURN OUR ATTENTION TO SPONTANEOUS TUBERCULOSIS, WE, STRANGELY ENOUGH, OBSERVE SOMETHING QUITE DIFFERENT.

"FROM A VERY EARLY PERIOD, THE CLINIC HAS ATTACHED A HIGH IMPORTANCE TO THE NERVOUS SYSTEM IN THIS PROCESS."

Pages 254-255.

"HENCE, FIRST THE INFLAMMATION CAME TO AN END, AND ONLY AFTER THIS CAME THE LIQUIDATION OF THE 'CAUSES' WHICH HAD PRODUCED IT. THIS SHOULD PROVIDE MATERIAL FOR REFLECTION FOR THOSE PERSONS WHO ARE CONVINCED THAT THE INFLAMMATORY REACTION OF THE TISSUES IS INDEPENDENT OF NERVOUS INFLUENCES!

"Yet another circumstance remains not entirely comprehensible. We know from laboratory experiments that it is possible to infect almost any organ with tuberculosis by direct injection of the virus. In the spontaneous form of this process, however, or on infection through the blood, the organs of an animal are affected selectively and in some definite sequence. One cannot help thinking that, on injecting virus into an organ, besides the introduction of a special irritating agent, there is also the infliction of an ordinary trauma. In cases where the virus penetrates into the same tissues through the blood, this additional factor does not exist or is considerably less.

"Hence, simple encounter with the virus is not enough. IT IS NECESSARY ALSO THAT THE SO-CALLED 'RESISTANCE' OF THE GIVEN ORGAN TO THE VIRUS SHOULD BE DIMINISHED. Consequently, the place for the focus is prepared either in advance or simultaneously, but, in any case, BY THE ACTION OF SOME OTHER AGENT. *It was natural to seek here for the participation of precisely those processes which have been studied by us under the name of nervous dystrophy.*"

Pages 255-256.

"IN THE RABBITS IN WHICH BOTH N. VAGI HAD BEEN SEVERED BELOW THE DIAPHRAGM, THE WHOLE PROCESS TOOK A DIFFERENT COURSE."

Page 258.

"CONSEQUENTLY, TUBERCULOSIS OF THE GASTRIC WALL SENSIBILIZES THE LUNGS IN THE RABBIT, PROVIDED THE NORMAL RELATIONS IN THE NERVOUS SYSTEM ARE MAINTAINED. ALTERATION OF THE LATTER PRODUCES, EVEN IF ONLY TEMPORARILY, INCREASED RESISTANCE OF THE LUNGS TO TUBERCULOSIS.

"SEVERANCE OF ONE OF THE N. VAGI IN THE NECK HAS THE SAME EFFECT ON BOTH LUNGS. CONSEQUENTLY, SUCH SEVERANCE NOT ONLY ACTED BY ITSELF BUT ALSO SERVED AS A STIMULUS LEADING TO THE CREATION OF NEW CONDITIONS WITHIN THE NERVOUS SYSTEM. THIS CAUSED A CHANGE IN THE BIO-CHEMICAL PROPERTIES BOTH OF THOSE TISSUES WITH WHICH THE SEVERED NERVE WAS IMMEDIATELY CONNECTED AND OF THOSE CONNECTED WITH THE OTHER HALF OF THE GIVEN SEGMENT OF THE NERVOUS SYSTEM. Hence, here also there was a repetition of the rule (already noted previously on many occasions) that, in estimating the effect of a particular procedure applied to the nervous system, IT IS NECESSARY TO TAKE INTO ACCOUNT NOT ONLY THE FORM OF THIS PROCEDURE BUT ALSO THE ACT OF INTERFERENCE ITSELF WHICH ORIGINATES A WHOLE GROUP OF PROCESSES.

"In order to bring out clearly how the order of development of tuberculosis infection in the organs DEPENDS ON PROCESSES DEVELOPING IN THE NERVOUS SYSTEM, it is necessary to arrange an experiment in a region where it is possible to analyze the complex mutual relations in the nerve apparatus, utilizing at least data from the history of development."

Page 259.

"IT IS PROBABLE THAT THEIR NERVOUS SYSTEMS ARE ALSO IN CLOSE RELATION TO ONE ANOTHER. IF THIS IS SO, WE MAY EXPECT THAT BY ACTING ON THE NERVOUS ELEMENTS IN THE TESTICLE, WE SHALL INVOLVE THE NERVOUS SYSTEM OF THE KIDNEY AS WELL."

Page 261.

"THEY DEVELOP FROM DIFFERENT SOURCES AND FROM DIFFERENT REGIONS OF THE BODY. THEY BECOME UNITED SECONDARILY. THE CIRCULATORY SYSTEM OF EACH IS INDEPENDENT. THE SAME VIEW MUST BE ADOPTED OF THEIR NERVOUS SYSTEMS. IN THAT CASE INFECTION THROUGH THE EPIDIDYMIS SHOULD NOT PRODUCE TUBERCULOSIS AFFECTION IN THE KIDNEY. THIS WAS ACTUALLY CONFIRMED BY EXPERIMENT."

Page 261.

"THE SELECTIVITY EXHIBITED IN THE AFFECTION OF PARTICULAR ORGANS IF FOUNDED ON PROCESSES OF A NERVOUS NATURE. If the so-called sensibilization were the result merely of influences directly affecting the tissue elements, AND NOT THROUGH THE MEDIUM OF THE NERVOUS SYSTEM, the ovary would be the first or even the sole organ involved in the pathological process. BUT THE CHANGES WE OBSERVED WERE SHARPLY DISTINCT FROM THE CHANGES IN THE KIDNEYS.

"IF THE IRRITATION OF THE OVARY PRODUCED A CHANGE IN THE NERVOUS SYSTEM OF THE KIDNEY, THE NERVOUS SYSTEM OF THE OVARY COULD NOT REMAIN INTACT! Nevertheless, the kidney was not affected by staphylococcus. IT FOLLOWS FROM THIS THAT THE PROCESS PRODUCED BY THE IMMEDIATE IRRITATION OF A PARTICULAR POINT OF THE NERVOUS SYSTEM BECOMES THE ORIGI-

NATOR OF DISSIMILAR TISSUE CHANGES OF A BIO-CHEMICAL CHARACTER IN VARIOUS OTHER POINTS OF THE ORGANISM."

Page 262.

"IN THE VAST MAJORITY OF CASES, THE ORGANISM EASILY FREES ITSELF FROM BACTERIAL IMPURITIES."

Page 265.

"THUS, FROM BEING AN ACTIVE PARTICIPANT, OR EVEN THE PRODUCING AGENT, THE MICROBES ARE DEGRADED TO A SUB-ORDINATE POSITION."

Page 266.

"With weak degrees of irritation, the process may begin imperceptibly. We have seen above that an externally weak irritating agent of this kind is capable in the final result of proving far more dangerous. The functions of the irritating agent are imperceptibly transferred to the nerve cell which becomes the source of new irritation that progressively develops within the network of the nervous system. At this stage, not only the maintenance of the inflammation, but also its transition to a chronic form and the creation of new local foci, IS BROUGHT ABOUT BY OTHER MECHANISMS.

"For the microbe subsequently to retain even the mere rule of an indicator, conferring particular, special features on the inflammation, IT MUST FIND THE CONDITIONS NECESSARY FOR ITS EXISTENCE IN THE ALTERED TISSUES. The new local foci that have appeared at the periphery as a result of nervous dystrophy will in that case be colonized by the microbe which was the initiator of the whole process ONLY IF THE PHYSICO-CHEMICAL CONDITIONS OF THE ENVIRONMENT ARE SUITABLE PRECISELY FOR THIS MICROBE AND FOR NO OTHER. If this is not the case, the disease, which began under the action of one irritating agent, will continue under the aegis of another — perhaps even an innocent one; IN THE MEANTIME, THE PHYSICIAN, REASONING FROM THE OBVIOUS, WILL ASCRIBE TO THIS OTHER AGENT BOTH THE INITIATION AND THE WHOLE RESPONSIBILITY FOR THE SUBSEQUENT COURSE OF THE PROCESS.

"One has only to change the state of innervation of an organ which was hitherto an easy 'prey' to the virus, FOR INSTANCE TO SEVER THE N. VAGI OF A RABBIT'S STOMACH, for the character of the tuberculous process to change accordingly. THE TEMPORARY CHARACTER OF THIS CHANGE MAKES THE MATTER ONLY MORE EVIDENT; WE KNOW, INDEED, THAT PRECISELY THE NERVOUS SYSTEM CANNOT BE CHANGED IN A DEFINITE FASHION, AND ONCE FOR ALL. Our operation stimulates a whole series of processes, which develop progressively and do not rapidly die out. In the secondary foci, therefore, the fate of the virus, and with it the characteristic features of the whole process, is connected with the state of the tissues which preceded the appearance of the microbe and gave the latter the possibility of exhibiting its actual or apparent activity. But the state of a tissue, both in the sense of what constitutes its environment and in the sense of the energy of its living elements, DEPENDS ON MOBILE INFLUENCES OF A NERVOUS NATURE; CONSEQUENTLY THE NERVOUS FACTOR IN THE PROCESS IS DECISIVE FROM BEGINNING TO END."

Pages 266-267.

"I SHALL NOT SET OUT ANY DETAILS ABOUT THE PATHO-GENESIS OF SYPHILIS AND IMMUNITY IN THIS DISEASE. THEY ARE WELL KNOWN TO EVERYONE, OR — MORE CORRECTLY — ARE NOT KNOWN TO ANYONE. Matters here are far worse than in regard to tuberculosis. There is hardly any other process in which verbal superstructures to the experimental data are so inevitable. ONE CANNOT HELP COMING TO THE CONCLUSION THAT THERE IS SOME MISTAKE AT THE VERY FOUNDATION OF THE THEORY, NOT OF SYPHILIS, BUT OF INFLAMMATION IN GENERAL, MAKING IT IMPOSSIBLE TO ARRANGE THE FACTORS IN A DEFINITE LOGICAL ORDER.

"The successes obtained in the prophylaxis and clinical treatment of rabies, tetanus, anthrax and especially diphtheria, gave rise to a natural endeavor to increase the number of processes dealt with. These efforts did not bear the anticipated fruits, but previous successes still prevent the basic theses from being shaken. CHANGES IN ORGANS DURING THE INFECTIONAL PROCESSES ARE STILL REGARDED AS THE RESULT OF CONTACT OF THE ORGANS WITH A SPECIFIC IRRITATING AGENT, AND ALSO AS EVIDENCE OF MUTUAL STRUGGLE BETWEEN THE TWO FACTORS. WE HAVE ALREADY REPEATEDLY SEEN THAT SUCH A CONCEPTION CAN BY NO MEANS ALWAYS BE JUSTIFIED IN FACT. The strength of one of the factors — the microbe — *is considerably weaker than is usually thought*; on the other hand, the other factor — the injured organism — is capable of inflicting damage on its own tissues and organs to a much greater extent than is done by the microbe." Pages 267-268.

"The fact is also noteworthy that, with the continuing development of syphilis in a human organism, THE LOCAL SYMPTOMS BECOME INCREASINGLY MORE SEVERE (ROSEOLAS, PAPULAE, PUSTULES, GUMMATA), WHILE THE AMOUNT OF THE IMMEDIATE IRRITATING AGENT CONTINUALLY DECREASES IN THESE AFFECTED AREAS, SO THAT, FOR INSTANCE, IN THE GUMMATA THE SPIROCHAETE CAN ONLY BE DISCOVERED WITH DIFFICULTY." Page 268.

"WHAT HAS BEEN SAID BY NO MEANS EXHAUSTS ALL THE PERPLEXITIES ENCOUNTERED IN STUDYING THE PATHOGENESIS OF SYPHILIS, but I do not think it is necessary to give a full enumeration of them. It is not part of our task to study this process as a specific pathological form. After observing in the case of tuberculosis the fundamental features of the general questions relating to the nervous factor in chronic inflammation, the direction taken by our work on syphilis followed automatically.

"Even on a first acquaintance with the experimental work on syphilis, the question of 'nullers' could not but attract our attention. The data obtained by Kolle in this respect acquired a special meaning for us. We could only regard them in the following light: to obtain the full picture of the disease in rabbits, not only infection, BUT ALSO A FOCUS OF PRIMARY IRRITATION IN THE NERVOUS SYSTEM IS NECESSARY. CONSEQUENTLY, THE EXPERIMENTAL PROBLEM CONSISTED IN ESTABLISHING WHETHER IN SYPHILIS THE NERVOUS SYSTEM PARTICIPATES IN

THE FORMATION OF THE PRIMARY AND SECONDARY FOCI, AND IF SO, TO WHAT EXTENT. THE SOLUTION OF THIS QUESTION PROVIDED US WITH THE CLUE TO A NUMBER OF OTHER PROBLEMS."

Pages 269-270.

"THIS FURTHER STRENGTHENED US IN THE CONVICTION THAT THE IMPORTANT QUESTION IS NOT SO MUCH THE SEVERANCE OF THE PARTICULAR NERVES SELECTED, AS THE INFLICTION IN GENERAL OF A NERVE TRAUMA IN THE GIVEN REGION." Page 270.

"IT FOLLOWS THAT WHEN A NERVE TRAUMA IS ADDED TO THE USUAL FORM OF INFECTION OF RABBITS BY SYPHILIS, THE FORM OF DEVELOPMENT OF THE PROCESS UNDERGOES A PRONOUNCED CHANGE. THIS FINDS EXPRESSION IN A NUMBER OF SPECIAL FEATURES. THE MOST IMPORTANT OF THESE IS THE DEVELOPMENT OF SYMMETRICALLY SITUATED AFFECTIONS having all the characters of the primary reaction, i.e., sclerosis, but developing in places where the virus was not injected. These affections are not accidental, for they practically never occur among the controls."

Pages 271-272.

"IN THAT CASE, THE LOSS OF THESE CHARACTERISTIC FEATURES ALSO COULD ONLY BE THE CONSEQUENCES OF NERVOUS CHANGES."

Page 273.

"Whatever criterion is applied to these experiments, it is clear that the general picture of syphilitic sclerosis in the rabbit can be obtained not only at the place where the virus is introduced, but also at the symmetrically situated place on the other side. This sclerosis, like the first one, contains a large amount of spirochaetes. IT WOULD BE DIFFICULT TO EXPLAIN THE MECHANISM by which they get here and their subsequent fate, as well as their changes, by applying the concepts of direct inoculation, of the struggle of the two agents, viz., the micro—and the macro-organism, of temporary victory of the former and new temporary victory of the latter, or by having recourse to any other of the views that are generally put forward FOR THE MORE OR LESS INGENIOUS ANALYSIS OF THE PATHOGENESIS OF SYPHILIS.

"WE OBTAINED ABSOLUTELY TYPICAL SCLEROSIS IN INTACT TISSUES WHICH WERE CONNECTED WITH THE POINT OF PRIMARY IRRITATION THROUGH THE CORRESPONDING SEGMENT OF THE NERVOUS SYSTEM. This sclerosis was undoubtedly secondary; but since it arose within a short period of time and moreover IN THE SAME NERVE SETMENT, it repeated in all details the general picture which was found, or ought to have been found, at the primary focus."

Pages 274-275.

"IN MAKING IT HIS AIM TO DETERMINE, NOT ONLY THE CAUSE, BUT ALSO THE COURSE OF A PARTICULAR PATHOLOGICAL PHENOMENON, THE PHYSICIAN, FOR SOME REASON, ADOPTS DIFFERENT METHODS OF WORK IN STUDYING THESE TWO ASPECTS. THE CAUSE IS REGARDED AS SOMETHING INVARIABLE, GIVEN ONCE FOR ALL, WHILE THE COURSE OR DEVELOPMENT OF THE DISEASE,

ON THE CONTRARY, IS LOOKED UPON AS A SEQUENCE OF REACTIONS." Page 275.

"THE MATERIALS ANALYZED BY US DEMONSTRATE VERY CLEARLY, NOT ONLY THE DEVELOPMENT OF THE PATHOLOGICAL PROCESS, BUT ALSO THE EVOLUTION OF ITS CAUSES.

"CHEMICAL AND INFECTIONAL TRAUMA OF NERVE STRUCTURES RESULTS IN NERVOUS DYSTROPHY; THIS, IN ITS TURN, GIVES THE IMPULSE FOR THE DEVELOPMENT IN THE TISSUES OF OTHER KINDS OF PATHOLOGICAL CHANGE, INCLUDING THOSE OF AN INFLAMMATORY CHARACTER. THEIR DISPOSITION AT THE PERIPHERY CAN BE PREDICTED BY US IN ADVANCE, AND THEIR BOUNDARIES REMAIN UNCHANGED, OFTEN THROUGHOUT LONG PERIODS.

"It is considered that the basic cause of inflammation is some external 'injurious influence'. It is clear from our cases that the injurious influence was only such for particular points of the organism and became impotent even in neighboring portions. SUCH A STATE OF THINGS WOULD BE INCONCEIVABLE IF THE 'INJURIOUS INFLUENCE' WAS ACTUALLY BROUGHT IN FROM OUTSIDE. CONSEQUENTLY OTHER CAUSES ARE CONCERNED, LYING CONCEALED IN THE PRIMARY CHANGE OF THE TISSUES THEMSELVES AT PARTICULAR POINTS.

"A LOCAL CHANGE OF THE STATE OF THE NERVOUS SYSTEM IS, ABOVE ALL, A LOCAL CHANGE OF THE ENVIRONMENT, A DESTRUCTION OF THE NORMAL PHYSICO-CHEMICAL STATE OF THE GIVEN REGION. However this destruction comes about—whether by a foreign agent OR PROCESSES OF AN INTERNAL NATURE—the character of the reactions exhibited will be one and the same, FOR NOW THE DAMAGED ELEMENTS OF THE ORGANISM THEMSELVES BECOME A FOREIGN AGENT FOR IT. CONSEQUENTLY, THE NERVOUS SYSTEM IS ITSELF CAPABLE OF BEING THE ORGANIZER OF INFLAMMATION, OF CREATING THE 'INJURIOUS INFLUENCE' WHICH PRODUCES THE INFLAMMATION.

"IT SEEMS TO ME THAT THE ABOVE-DESCRIBED OBSERVATIONS CATEGORICALLY DECIDE THE QUESTION OF THE PARTICIPATION OF THE NERVOUS SYSTEM, NOT ONLY IN THE COURSE BUT IN THE GENESIS OF THE INFLAMMATORY PROCESS, AND THAT AS FAR AS PRINCIPLE IS CONCERNED, THE MATTER CAN BE REGARDED AS SETTLED.

"An infectional or toxic focus, exactly like an irritating agent of a physical nature, produces changes in the organism both locally and at a distance. These changes may pass away without leaving traces, but this is not always so. WHERE THE NERVOUS SYSTEM IS DRAWN INTO THE PROCESS, THE FATE OF THE PRIMARY FOCUS AND THE GENERALIZATION OF THE PROCESS CEASE TO BE DEPENDENT ON LOCAL CAUSES ALONE. A new additional cause makes its appearance, as a result of which the original cause easily becomes obscured, and finally loses its importance.

"This is especially pronounced in processes of infectional origin, where the immediate irritating agent may be both annihilated and neutralized by a series of specific and non-specific reactions. We have seen that if microbes are present chronically (often for a number of years) in the pathologically altered tissues, THIS IS FAR FROM BEING PROOF THAT THE ORGANISM IS INCAPABLE OF COPING WITH THEM. ON THE CONTRARY, THE MICROBE IS NEUTRALIZED, IT DOES NOT ITSELF IRRITATE THE TISSUES ANY LONGER, AND PRECISELY FOR THAT REASON ITS PHYSICAL DESTRUCTION IS USELESS, SINCE, AFTER THE MICROBE HAS CEASED TO BE THE CAUSE OF THE DISEASE, THE DESTRUCTION OF THE MICROBE DOES NOT ABOLISH THE DISEASE.

"If, in our analysis of the general complex of conditions of acute inflammation, lasting hours or days, WE WERE COMPELLED TO PUT THE NERVOUS SYSTEM IN THE FOREFRONT, ITS ROLE IN CHRONIC INFLAMMATION MUST BE STILL MORE MARKED. INDEED, IN CHRONIC INFLAMMATION BOTH THE MAINTENANCE OF THE PRIMARY FOCUS AND THE FORMATION OF SECONDARY FOCI BECOME NOTHING LESS THAN A NEW PATHOLOGICAL FUNCTION OF THE NERVOUS SYSTEM.

"IT IS NO WONDER THAT UP TO NOW WE HAVE NOT HAD ANY THEORY OF CHRONIC INFLAMMATION. WE HAVE BEEN BROUGHT UP TO BELIEVE THAT THE NERVOUS SYSTEM DOES NOT PLAY ANY ESSENTIAL ROLE IN THIS PHENOMENON. HOW COULD WE GUESS THAT IN THE FINAL ANALYSIS IT IS JUST THE NERVOUS SYSTEM THAT IS ITS FUNDAMENTAL CAUSE?"

Pages 275-277.

"We have still to analyze one question which we have hitherto deliberately omitted from consideration. This question concerns the quality of the irritating agent, in other words, the property of the foreign agent to evoke in the organism a reaction which is distinguished by special features typical of this particular agent. This is a very complicated question. AT THE SAME TIME IT IS A FUNDAMENTAL ONE, SINCE IT IS PRECISELY THE PROBLEM OF QUALITY WHICH FORMS THE OBJECT OF STUDY OF SPECIAL PATHOLOGY, AS DISTINCT FROM GENERAL PATHOLOGY.

"THE DIFFICULTIES THAT ARISE IN ITS SOLUTION DEPEND NOT SO MUCH EVEN ON THE COMPLEXITY OF THE SUBJECT, AS ON THE ABSENCE OF CORRECT BASIC PROPOSITIONS. We have already had to point out more than once that, in judging the consequences of irritation, the whole chain of subsequent reactions IS OFTEN CONSIDERED AS THE RESULT OF THE DIRECT ACTION OF THE IRRITATING AGENT ON EACH OF THE REACTING ELEMENTS AND THAT THIS CONCEPTION IS ERRONEOUS. We reached the conviction that the agent commencing the reaction very soon transfers its property of irritating agent to parts of the organism itself.

"In this way, a whole mass of reactions arise from a single point. NOT ALL OF THEM ARE SPECIFIC. For the investigator to be able to filter out just those processes which are actually connected with a definite and special action, it is necessary to begin by excluding everything accidental and sub-

sidary; in other words the field of work has to be cleared. This naturally restrained us from proceeding directly to the study of specific reactions, and for a number of years caused our attention to be concentrated on the study of their non-specific features.

"We saw that rabies, a sore on the tuber cinereum produced by a glass sphere, irritation of any branch of the n. trigeminus by croton oil, injection of formalin into the pulp cavity of a tooth or of bile into the upper cervical ganglion, introduction of foreign protein or various vaccines into the blood, poisoning by salts of the heavy metals, e.g., corrosive sublimate, etc. — ALL THESE ARE CAPABLE OF PRODUCING IN A NUMBER OF ORGANS CHANGES THAT ARE ABSOLUTELY CONSTANT AND SO MUCH ALIKE THAT IT IS IMPOSSIBLE TO DISTINGUISH THEM FROM ONE ANOTHER. IT IS CLEAR THAT WE CANNOT CONNECT THE PRODUCTION OF THESE CHANGES WITH SPECIAL QUALITIES OF THE IRRITANT USED, otherwise we should have to compare a glass sphere with corrosive sublimate and the latter with rabies virus. IT IS CLEAR THAT THE PRESENCE OF THE IRRITANT, e.g., CORROSIVE SUBLIMATE, IN THE FOCI OF ACUTE LOCAL AFFECTIONS CANNOT ALTER OUR POINT OF VIEW ON THIS SUBJECT, SINCE WE OBTAIN EXACTLY THE SAME FOCI, IN THE SAME FORM, AND AT THE SAME PLACES, WITHOUT USING ANY POISONOUS SUBSTANCES.

"Nor is importance to be attached to the fact that in cases of chronic poisoning (mercury, lead), particles of the heavy metals are deposited in chronic inflammatory foci. It is interesting to note that these places are very constant. The chief proof of the theory of 'tropism' is derived from this fact. BUT, AS WE HAVE ALREADY SHOWN, THIS TOPOGRAPHIC CONSTANCY CASTS SUSPICION ON THE WHOLE INTERPRETATION. We saw in our experiments that a glass sphere placed on the sella turcica 'selects' for local peripheral foci exactly the same places as lead or corrosive sublimate. Are we not then justified in thinking that these places have been prepared by ANOTHER process and that their origin is only HISTORICALLY connected with the immediate irritating agent?

"This is the reason why it is necessary at the outset to become acquainted WITH THE CONSTANT FEATURES WHICH DO NOT DEPEND ON THE PROPERTIES OF THE IRRITATING AGENT AND ARE EXHIBITED EQUALLY IN ALL CASES OF IRRITATION.

"In analyzing this aspect of the matter we found that the time factor is prominent above all, for without taking it into account all other data lose their value. Additional irritations ON THE PART OF THE NERVOUS SYSTEM soon convert the reaction into a complex of direct and reflected actions. IT THEN BECOMES IMPOSSIBLE TO SPEAK OF SPECIAL PROPERTIES OF THE IRRITATING AGENT, SINCE EVEN ITS COMPLETE REMOVAL IS OFTEN POWERLESS TO ARREST THE PROCESS.

"Nevertheless, this process IN SOME STRANGE FASHION is capable of preserving its qualitative peculiarities throughout many months and years!

THE EXPLANATION OF THIS CONTRADICTION IS SIMULTANEOUSLY ALSO THE KEY TO THE PROBLEM OF QUALITY IN PATHOLOGY."

Pages 278-279.

"Concrete work in this direction can be reduced to the analysis of two propositions."

"The second proposition is of much greater theoretical importance. We have seen that THE IRRITATING AGENT CAN BE WITHDRAWN from the organism or neutralized, AND YET THE PROCESS PRESERVES ITS SPECIFIC FEATURES. Consequently, for a certain time, changes produced in the organism by the irritating agent can remain in it, not simply in the form of ordinary irritation, but in a special — qualitatively distinct — form of this irritation."

Page 279.

"All this takes place in vitro; NO NERVE INFLUENCES ARE REQUIRED. THE EXPERIMENTS MENTIONED GIVE A NEGATIVE ANSWER TO THE QUESTION OF THE ROLE OF THE NERVOUS SYSTEM in this process, AND ANY ATTEMPT TO PROVE THAT IT DOES PLAY A PART HERE IS CONDEMNED TO FAILURE IN ADVANCE.

"However, this is the situation ONLY ON A HASTY VIEW. In experiments on tuberculosis in tissue cultures in vitro, we encountered an essentially similar phenomenon. THIS DID NOT PUT A STOP TO OUR STUDY OF THE ROLE OF THE NERVOUS SYSTEM IN TUBERCULOSIS AND, AS WAS SHOWN, LED TO AN AFFIRMATIVE ANSWER TO THIS QUESTION.

"The basic premise consists in the INADMISSIBILITY OF ANALOGIES BETWEEN PROCESSES TAKING PLACE IN A COMPLEX ORGANISM AND IN TISSUE CULTURES. Even if an epithelial cell is converted into a cancer cell in consequence of immediate contact with the irritant, it is still necessary to discover WHETHER THERE IS ANYTHING IN THE ORGANISM which is capable of facilitating or preventing such a transformation.

"The first experimental data on the question of the connection of neoplasms WITH A DEFINITE FUNCTIONAL STATE OF THE NERVOUS SYSTEM were provided by Spiess. In the case of cancer in mice or cancer of the throat in man, he succeeded in showing that repeated local anesthesia results in inhibiting the growth of neoplasms and sometimes even causes them to disappear altogether.

"That THE NERVOUS SYSTEM MUST POSSESS AT LEAST SOME INFLUENCE on the development of neoplasms can be considered experimentally established by the experiments on so-called tar cancer. First Ischikawa and Kotzareff, and afterwards Tsunoda and others, BY SEVERING VARIOUS NERVES of the ear in rabbits, sometimes obtained a considerable increase in growth of tar papillomata, and at other times, on the contrary, inhibition of their development. Even before this, A. G. Molotkov had obtained in some cases rapid cures of cancer of the cheek and upper lip in man BY SEVERING THE SECOND BRANCH OF THE N. TRIGEMINUS. Ricker also put forward a number of data from his observations providing

evidence of the connection of neoplasms WITH CHANGES IN THE NERVOUS SYSTEM. The histological researches of Argaut, Ischikawa and others revealed the presence of nerves in cancer tumors. Martynov proved their considerable development in stages preceding the formation of tar cancer in rabbits. The clinic has long known that cancer is FREQUENTLY ACCOMPANIED BY PATHOLOGICAL SYMPTOMS OF A NERVOUS CHARACTER.

"CONSEQUENTLY, THERE IS NO DOUBT THAT SOME CONNECTION EXISTS BETWEEN NEOPLASMS AND THE NERVOUS SYSTEM. However, a formal indication of the participation of the nervous system in this process is not sufficient. THE NERVOUS SYSTEM, BEING CONNECTED WITH ALMOST EVERY CELL OF THE ORGANISM, MUST AS A MATTER OF COURSE BE INVOLVED IN ALL PATHOLOGICAL PROCESSES. THE PROBLEM IS TO DETERMINE THE FORM AND EXTENT OF THIS PARTICIPATION.

"A SERIES OF EXPERIMENTS, DESCRIBED IN PRECEDING CHAPTERS OF THIS BOOK, HAVE SHOWN THAT THE NERVOUS SYSTEM IS NOT ONLY INVOLVED IN, BUT ORGANIZES AND DETERMINES MANY PATHOLOGICAL FORMS WHICH HITHERTO HAVE BEEN REGARDED AS INDEPENDENT OF NERVOUS INFLUENCES."

Pages 280-281.

"IT IS A QUESTION OF NERVE TRAUMA, i.e., OF TEMPORARY CHANGE IN THE STATE OF THE NERVOUS SYSTEM." Page 282.

"WE WERE COMPELLED TO CONNECT THE RESULT WITH A CHANGE IN THE CHARACTER OF NERVOUS INTERRELATIONS. CONSEQUENTLY, BOTH CATEGORIES OF PROCESSES HAVE ONE THING IN COMMON, VIZ., THEIR NERVOUS COMPONENT. IF THERE IS ANYTHING THAT MUST BE DEMONSTRATED, IT IS NOT THE PARTICIPATION OF THE NERVOUS SYSTEM IN THESE PROCESSES, BUT, ON THE CONTRARY, OUR RIGHT TO REGARD LOCAL ELEMENTS (EPITHELIUM, MUSCLES, CONNECTIVE TISSUE, ETC.) AS INDEPENDENT ORIGINATORS OF SPECIAL FORMS OF RESPONSE TO IRRITATION.

"Experiments on the development of 'malignant' properties by cells in tissue cultures in vitro, under the influence of chemical actions, CANNOT IN ANY WAY CONTRADICT THIS THESIS. The effect which is produced in tissue cultures in vitro, by a chemical agent introduced from outside, is performed in vivo by a different agent, also foreign and also chemical in nature, BUT ARISING IN THIS CASE AS A RESULT OF AN ABNORMAL STATE OF THE NERVOUS SYSTEM."

Pages 282-283.

"The fact that the character of the reaction is determined during the first stages of irritation AND THAT THE NERVOUS SYSTEM PLAYS A DECISIVE ROLE IN THIS PROCESS, permits us to answer the question put at the beginning of this chapter: What are the elements in which the traces of the special form of irritation are preserved?

"Let us assume that under laboratory conditions, WHEN A REALLY FOREIGN AGENT ARTIFICIALLY INTRODUCED FROM OUTSIDE BEGINS THE REACTION, THE NERVOUS SYSTEM ONLY CREATES ACCESSORY CONDITIONS WHICH ARE, NEVERTHELESS, ESSENTIAL FOR THE COURSE OF THE PROCESS. This signifies that if the local nerve conditions at any point of the organism are changed by some other cause, BUT IN THE SAME WAY as by the action of the foreign agent, the consequences will inevitably be identical."

Page 283.

"AT THE PRESENT TIME, the whole pathogenesis of tetanus is looked upon as the result of the direct contact of each reacting element to the irritant. According to the generally accepted point of view, the toxin advances along the nerve from its place of formation or introduction to the corresponding cell structures of the spinal cord. Acting directly on them, it sharply increases their reflex excitability. At the beginning, this is observable within the limits of one or two nerve segments. As new portions of the toxin arrive, the toxin spreads upwards and downwards along the spinal cord, involving the corresponding elements of neighboring regions. The process terminates in generalization of the tetanus symptoms throughout the central nervous system.

"Hence, the whole thing is reduced to a simple and almost mechanical factor; all nerve elements drawn into the process are connected directly with the toxin; if the toxin did not move along the nerve and spinal cord, we should not know what tetanus is. In full accordance with this view, it is believed that the only way to put an end to the symptoms of tetanus is by removing or neutralizing the toxin.

"As already noted, THIS VIEW ENJOYS GENERAL RECOGNITION. It is based on absolutely direct experiments, the chief of which can be divided into two series. The first series comprises experiments demonstrating the progressive accumulation of the toxin at various levels of the nerve trunks connected with the place of injection. The second establishes that preliminary section of the corresponding spinal nerves safeguards the animal against the disease, even when active and fatal doses of toxin are injected into the tissues. Other researches have aimed only at supplementing these data with further details.

"THE MATTER SEEMED SETTLED WITHOUT LEAVING ANY DOUBTS OR REASONS FOR NEW EXPERIMENTS. Such was the state of affairs before we had arrived at the necessity of dividing the mechanism of movement of various substances along the nerve trunk into two forms, passive and active.

"If the active form of movement is the result of chemical interaction between the toxin and the nerve tissue, then irritation begins from the first stage of the process and not merely from the moment when the toxin reaches the nerve cell and enters into combination with it. THIS CIRCUMSTANCE HAS SOMEHOW BEEN LEFT OUT OF ACCOUNT. We directed attention to it for the first time in the experiments described above, performed on

dogs, in which we injected the toxin into the muscles of the knee after unilateral or bilateral removal of the abdominal sympathetic chain. The influence on the course of the tetanus process of the new conditions thus created was then obvious. It became clear that, other conditions being equal, CHANGES EVEN IN REMOTE NERVE REGIONS ARE CAPABLE OF SHARPLY ALTERING THE FORM OF RESPONSE OF elements in which the process appears to develop selectively. ALL THIS CAUSED US TO DOUBT THE CORRECTNESS OF THE ORTHODOX CONCEPTION OF THE PATHOGENESIS OF TETANUS.

"Direct grounds for such doubt were furnished by a chance observation described in the work of my collaborator, Dr. S. I. Lebedinskaya, belonging to the period when we were studying the consequences of nerve trauma inflicted repeatedly after various intervals of time. AS HAS BEEN SHOWN, THE REACTION OBTAINED BY NO MEANS ALWAYS CORRESPONDED TO THE CHARACTER OF THE REPEATED IRRITATION. FREQUENTLY IT GAVE RISE TO A PROCESS WHICH HAD DEVELOPED OR OUGHT TO HAVE DEVELOPED AS A RESULT OF THE PRIMARY IRRITATION."

Pages 283-285.

"THE INEVITABLE CONCLUSION TO BE DRAWN IS THAT LOCAL TETANUS CAN PASS INTO GENERAL TETANUS WITHOUT THE SPREADING OF THE TOXIN FROM THE REGION OF THE PRIMARY FOCUS THROUGHOUT THE CENTRAL NERVOUS SYSTEM." Page 285.

"IN OUR CASE, THE LOCAL SYMPTOM WAS MERELY THE FIRST STAGE OF A COMPLEX NERVOUS PROCESS HAVING ITS OWN DEFINITE CYCLE OF DEVELOPMENT. With an original irritation of small magnitude, the process was capable of coming to a stop half way. When, however, the strength of the irritation exceeds a certain limit, the process develops to the end. Underlying it, therefore, IS THE READY-PREPARED NERVOUS MECHANISM, where each new part that is set to work determines thereby the functioning of the succeeding part.

"IF THIS PARTICULAR CASE CAN BE EXPLAINED IN THIS WAY, IT IS SURELY POSSIBLE TO EXTEND THE EXPLANATION TO ALL OTHER FORMS OF SPONTANEOUS AND LABORATORY TETANUS. THE QUESTION THUS RAISED ACQUIRES EXCEPTIONAL IMPORTANCE NOT ONLY FOR THE PATHOGENESIS OF TETANUS BUT FOR PATHOLOGY AS A WHOLE. It was natural that we made this the subject of special investigation."

Page 286.

"The symptoms of local tetanus are lacking or, in some strange fashion, they are transferred to the opposite end of the central nervous system."

Page 286.

"Weighing up these data, we have to recognize that A NERVE TRAUMA, applied to various regions of the nervous system of an animal that has only just recovered from tetanus, IS ACTUALLY CAPABLE IN SOME CASES OF RESTORING THE PREVIOUS PICTURE OF THE DISEASE IN ALL ITS DETAILS."

Page 287.

"WE CANNOT, OF COURSE, COUNT ON RESTORING THE ORIGINAL PICTURE BY MEANS OF A SECOND BLOW IN ALL EXPERIMENTS WITHOUT EXCEPTION."

Page 287.

"We have seen that not only the result of the reaction but also its whole course may be re-established. This means that THE NERVOUS PROCESS, developing in time and consisting of an intricate complex of successively developing stages, is contained in the nervous system AS SUCH IN THE FORM OF A READY-PREPARED MECHANISM. The external agent is merely necessary to supply sufficient force TO START the reaction. Subsequently, this agent can be completely neutralized or removed BUT THE PROCESS will nevertheless proceed to ITS NATURAL conclusion.

"In the above-described data, attention is attracted by the fact of local symptoms being TRANSFERRED FROM THE REGION OF THE SEGMENT IMMEDIATELY IRRITATED TO THE OPPOSITE END OF THE CENTRAL NERVOUS SYSTEM. THIS FACT HAS NOT YET BEEN MADE THE SUBJECT OF INVESTIGATION IN THE PATHOGENESIS OF TETANUS."

Pages 287-288.

"THE IRRITATING AGENT WAS THE INITIATOR OF ALL THE PHENOMENA BUT PLAYED NO PART SUBSEQUENTLY.

"Similar data were also obtained in investigating tetanus symptoms. IT IS IMPOSSIBLE TO EXPLAIN THE STRANGE ANARCHY PREVAILING HERE IF ONE STARTS OUT MERELY FROM CONCEPTIONS OF THE MOVEMENT OF TOXIN IN THE NERVOUS SYSTEM.

"We were finally convinced of this by the material of my collaborators Bobkov and Fenelonov. In testing the influence of the place of injection on the general picture of the disease, among other experiments we introduced the toxin INTO THE UPPER CERVICAL SYMPATHETIC GANGLION. When this is performed on cats, a remarkable picture of sagittal tetanus almost regularly develops. The disease begins with the cervical muscles, as a result of which the head is turned to the side corresponding to the place of injection. This is followed by tetanus of the fore and hind extremities of the same side and also by muscle rigor of the same half of the trunk.

"If the toxin is injected on the left side, the body of the animal will also be bent towards the left, while the left fore and hind extremities are sometimes stretched out like sticks. At the same time, the right extremities remain flexible and retain almost their normal mobility."

Page 289.

"It would be a difficult task indeed to attempt an explanation OF THE PHENOMENA DESCRIBED FROM THE POINT OF VIEW OF THE MOVEMENT OF THE TOXIN WITHIN THE CENTRAL NERVOUS SYSTEM, AND TO DEFINE THE PATHS AND FORCES OF THIS MOVEMENT!

"HENCE, THE PROCESS OF GENERALIZATION OF TETANUS SYMPTOMS THROUGHOUT THE CENTRAL NERVOUS SYSTEM, CAN BE INDEPENDENT OF THE PRESENCE OF TOXIN WITHIN THE REACTING ELEMENTS. IN THAT CASE, WHAT PROOFS ARE THERE THAT THE PRIMARY LOCAL SYMPTOMS THEMSELVES ARE NECESSARILY

CONNECTED WITH THE TOXIN WHICH, BY MOVING ALONG THE NERVE TRUNK, REACHES THE CORRESPONDING CELLS OF THE SPINAL CORD AND AFFECTS THEM?

"This conception is based on the well-established fact that tetanus toxin moves along the nerve AND PENETRATES INTO THE BRAIN-STEM. Nevertheless, this fact alone is not sufficient. WE HAVE SEEN THAT ABSOLUTELY INDIFFERENT SUBSTANCES ARE ALSO CAPABLE OF ENTERING THE NERVE TRUNK AND MOVING ALONG IT TO THE CENTRAL NERVOUS SYSTEM. THERE MUST BE SOME ADDITIONAL PROOFS FOR ATTACHING SPECIAL SIGNIFICANCE TO THIS PROCESS."

Pages 290-291.

"***THEY DID NOT TAKE INTO ACCOUNT THAT AT THE SAME TIME THEY SUBJECTED THE NERVE TO TRAUMA. BY SO DOING, THEY BARRED THE ROAD TO ALL PROCESSES TAKING PLACE ALONG THE NERVE, AND NOT ONLY TO THE TOXIN ALONE. AS A RESULT OF THE OPERATION, BOTH THE MORPHOLOGICAL AND PHYSIOLOGICAL SUB-STRATUM WAS ALTERED. IT IS NOT SURPRISING THAT IN CONSEQUENCE THE NORMAL COURSE OF THE TETANUS PROCESS IS DESTROYED. AS A MATTER OF FACT, SEVERING THE CORRESPONDING NERVE, AS IS WELL KNOWN, QUITE CERTAINLY PREVENTS THE DEVELOPMENT OF TETANUS."

Page 291.

"CONSEQUENTLY, THE ACT ITSELF OF INTRODUCING A FOREIGN SUBSTANCE INTO THE NERVE, WHATEVER THE NATURE OF THE SUBSTANCE, PLAYS A FUNDAMENTAL ROLE IN THE PROCESS UNDER CONSIDERATION."

Page 292.

"THUS, THE QUESTION OF TETANUS WAS FORMULATED AS THE QUESTION OF A SPECIFIC FORM OF NERVE IRRITATION, WHICH ARISES IN THE REGION OF THE NERVE RECEPTORS AND WHICH IS TRANSFERRED FROM THERE TO THE CENTRE, SUBSEQUENTLY BECOMING MANIFESTED IN THE FORM OF A READY-PREPARED COMPLEX REACTION.

"IF THIS IS THE CASE WE MAY EXPECT THAT BY SEPARATING THE NERVE ENDINGS FROM THE MORE CENTRALLY SITUATED PARTS OF THE NERVOUS SYSTEM, OR EVEN BY MERELY MAKING THEM UNEXCITABLE DURING THE TIME OF ENCOUNTER WITH THE TOXIN, WE OUGHT TO PREVENT THE DEVELOPMENT OF TETANUS."

Pages 292-293.

"IT HAS ITS CYCLE OF DEVELOPMENT, WHICH IS CONSTANT FOR THE GIVEN ANIMAL, WHERE EACH SUCCEEDING LINK IS DETERMINED BY THE PRECEDING ONE, AND WHERE VARIATIONS DEPEND ON PHYSIOLOGICAL DIFFERENCES IN THE NERVE STRUCTURES WHICH WERE THE STARTING POINTS OF THE PROCESS." Page 295.

"This explains, at last, a strange fact which has long been a fundamental perplexity in the pathogenesis of tetanus. The fact is this: WE HAVE AT

OUR DISPOSAL VERY FEW SERA WHOSE SPECIFIC PROPERTIES CANNOT BE DOUBTED. AMONG THESE, TWO ARE PRE-EMINENT — ANTI-DIPHTHERIA SERUM AND ANTI-TETANUS SERUM. By various technical devices, the concentration of anti-bodies in them has not been raised to a high figure. NEVERTHELESS, ANTI-TETANUS SERUM DOES NOT EXERT ANY CURATIVE EFFECT. ITS EMPLOYMENT IS OF GREAT SIGNIFICANCE, BUT ONLY IN PROPHYLAXIS, i.e., IN CONDITIONS WHICH ARE IN NO WAY DIFFERENT FROM REACTIONS IN VITRO; THE SPECIFIC SERUM SIMPLY NEUTRALIZES THE TOXIN CONVERTING THE IRRITATING AGENT INTO AN INDIFFERENT SUBSTANCE. THEREBY THE VERY POSSIBILITY OF IRRITATION IS PREVENTED."

Page 295.

"LACK OF FAITH IN THE CURATIVE PROPERTIES OF ANTI-TETANUS SERUM HAS ALREADY CAUSED THE CLINIC TO RETURN TO THE METHODS OF SYMPTOMATIC TREATMENT. Thus, we see again employment of narcosis, which at any rate guarantees the patient a temporary alleviation of suffering; trial is made of magnesium, intra-lumbar injections of novocaine and even of solutions of carbolic acid (Synn Suvansa). It was found that novocaine and carbolic acid have an undoubted curative effect. TRUE, THIS EFFECT IS NOT PRESENT IN ALL CASES; IT IS, NEVERTHELESS, CONSIDERABLY MORE CONSTANT THAN THAT OF SPECIFIC ANTI-TOXIN. OF COURSE, THE SPECIFIC ANTI-TOXIN, INTRODUCED SUBARACHNOIDALLY, CAN NEUTRALIZE THE TOXIN THAT HAS MADE ITS WAY ALONG THE NERVE TRUNK FROM THE PLACE OF ITS FORMATION. IN THIS WAY, THE INTENSITY OF THE ADDITIONAL IRRITATION MAY BE, AND WILL BE, SOMEWHAT DECREASED. HOWEVER, THIS DOES NOT ABOLISH THOSE TETANUS SYMPTOMS WHICH HAVE ALREADY DEVELOPED.

"THE SOLE CONCLUSION TO BE DRAWN IS THAT SERUM TREATMENT OF TETANUS IS NOT SPECIFIC SINCE THE CAUSE OF THE DISEASE CHANGES WITH THE DEVELOPMENT OF THE PROCESS. On the other hand, influences which the clinic puts in the category of symptomatic influences now acquire the right to be termed causal. SERUM DOES NOT EXHIBIT ANY CURATIVE ACTION IN TETANUS BECAUSE THE PROCESS, EVEN DURING THE PERIOD OF INCUBATION, LOSES THOSE PROPERTIES WHICH IMMUNOLOGY INCLUDES IN THE SPHERE OF SPECIFIC REACTIONS."

Pages 296-297.

"ONLY THE CONCEPTION OF THIS PROCESS AS A SPECIFIC AND COMPLEX FORM OF NERVE REACTION, WHERE THE THRESHOLD OF IRRITATION IS DETERMINED BY THE SENSITIVITY OF THE RE-ACTING SUBSTRATUM, is capable of introducing the necessary clarity."

Page 297.

"THE EXTRACTION OF LARGE QUANTITIES OF CEREBRO-SPINAL FLUID MUST BE REGARDED ALSO AS A DIRECT ACTION ON THE NERVOUS SYSTEM, INITIATING A CHAIN OF ADDITIONAL IRRITATIONS. THIS RESULTS IN A TEMPORARY ALTERATION OF THE

MUTUAL RELATIONS OF THE VARIOUS PARTS OF THE NERVOUS SYSTEM. NOW WHEN THE STATE OF THE NERVOUS SYSTEM IS CHANGED, THE PROCESS SERVING AS AN INDICATOR WILL ALSO DEVELOP IN A NEW WAY.

"HERE, NOT FOR THE FIRST TIME, WE ENCOUNTER A CONTRADICTION. ADDITIONAL IRRITATION IN SOME CASES INTENSIFIES THE EXISTING PROCESS, IN OTHER CASES IT WEAKENS OR EVEN EXTINGUISHES IT. HOWEVER, STRANGE AS THIS FACT MAY APPEAR, IT IS UNDENIABLE; CONSEQUENTLY, THE ONLY THING TO DO IS TO RECOGNIZE IT.

"THE CAUSE LIES IN THE FACT THAT THE SUBSTRATUM ACTED ON IS THE NERVOUS SYSTEM, ALL ELEMENTS OF WHICH ARE CONNECTED WITH ONE ANOTHER IN LIABLE COMBINATIONS. Only if the irritation arising in this network is weak is it extinguished without spreading far. UNUSUAL FORMS OF IRRITATION, SUCH AS PATHOLOGY HAS TO DEAL WITH, SPREAD OVER CONSIDERABLE NERVE AREAS AND PRODUCE A TEMPORARY TRANSFORMATION OF INTRA-NERVE RELATIONS FAR BEYOND THE LIMITS OF IMMEDIATE CONTACT WITH THE IRRITATING AGENT. THE RESPONSE TO IRRITATION IS HERE ALWAYS COMPLEX, THE REACTION ALWAYS PROCEEDS NOT ALONG ONE PATH BUT ALONG SEVERAL DIFFERENT PATHS AND IS THEREFORE MANIFESTED IN VARIOUS FORMS AND DEGREES. Depending on the individual conformation of the given nervous network, the strength of the irritation, the time and a number of other factors, one part or another of the reaction acquires preponderant importance and, obscuring the other parts, determines the external form of THE PROCESS. Hence, difference IN RESPONSE is not due to the reaction proceeding from the very beginning in different and even opposite directions." Page 298.

"THE AUTHORS POINTED OUT THAT APART FROM THE ELECTRIC CURRENT, CONTEMPORARY SCIENCE DOES NOT KNOW ANY MEANS WHICH, ORIGINATING FROM ONE POINT, COULD ALTER THE EXCITABILITY OF THE WHOLE NERVE ARC. THEY REGARDED THIS AS AN ADDITIONAL OBSTACLE FOR RECOGNIZING 'DYNAMIC SPREADING' THROUGH THE NERVOUS SYSTEM OF CHANGES PRODUCED AT THE PERIPHERY. SUCH RECOGNITION, THEY SAID, WOULD MEAN 'COMING INTO CONTRADICTION WITH ALL CONTEMPORARY EXPERIMENTS.'

"Paraphrasing the words of Hegel, we could reply here: 'SO MUCH THE WORSE FOR THE EXPERIMENTS.'" Page 300.

"We have adduced a sufficiently large amount of varied material putting beyond question precisely the 'dynamic spreading' of irritation from the region of the terminal nerve apparatus at the periphery to the whole complex nerve network." Page 300.

"1. THE SPECIFIC QUALITY OF AN IRRITATING AGENT IS ITS CAPACITY TO EVOKE AN UNUSUAL FORM OF NERVE IRRITATION, BRINGING DEFINITE NERVE MECHANISMS INTO ACTION. THIS IS

EXPRESSED AT THE PERIPHERY BY A NUMBER OF FUNCTIONAL AND STRUCTURAL DISTURBANCES, DEVELOPING SUCCESSIVELY ACCORDING TO A CONSTANT PLAN." Page 300.

"It was possible to suspect something of the sort, SINCE WE HAVE SEEN, FOR, INSTANCE, THAT SORE THROAT IN SCARLATINA WAS A PROCESS OF A NERVOUS NATURE, BEING THE REFLECTION OF THE NERVOUS PROCESS IN THE PERIPHERAL TISSUES." Page 302.

"IT FOLLOWS FROM ALL THIS THAT IN DIPHTHERIA ALSO WE HAVE NO FIRM GROUNDS FOR REGARDING LOCAL MANIFESTATIONS OF THE DISEASE AS THE RESULT OF DIRECT CONTACT OF THE TOXIN WITH EACH OF THE ELEMENTS THAT HAVE SUFFERED. ON THE CONTRARY, THERE IS EVERY REASON TO THINK THAT THE MAJORITY OF THESE MANIFESTATIONS OWE THEIR ORIGIN TO THE CHANGES WHICH THE TOXIN EVOKES WITHIN THE NETWORK OF THE NERVOUS SYSTEM. THE LATTER, TOO, DOES NOT CHANGE DIFFUSELY BUT IN A MORE OR LESS DEFINITE SEQUENCE, AND THIS IS THE REASON FOR THE CONSTANCY OF THE ORDER IN WHICH THE EXTERNAL SYMPTOMS OF THE DISEASE DEVELOP."

Page 304.

"IN THE HUMAN CLINIC, WE SEE ESSENTIALLY THE SAME THING. IN THE FIRST PLACE, IS IT NOT STRANGE THAT UP TO NOW NO FIRM VIEW HAS BEEN TAKEN OF THE SERUM AS A REALLY SPECIFIC AGENT IN THE TREATMENT OF DIPHTHERIA? E. Friedberger, in one of his articles has collected a considerable number of contradictions of various sorts relating to this subject. ANALYZING THE STATISTICS OF MORTALITY FROM DIPHTHERIA, HE POINTS OUT, FOR INSTANCE, THAT IN THE EPIDEMIC OF 1885-88 IN WEST PRUSSIA, MORTALITY FROM DIPHTHERIA FELL TO ONE-THIRD AS COMPARED WITH PREVIOUS YEARS, IN SPITE OF THE ABSENCE OF SERUM TREATMENT, WHILE IN 1926-27 IT INCREASED GREATLY IN SPITE OF WIDESPREAD APPLICATION OF CONCENTRATED SERA IN LARGE DOSES. THE AUTHOR ALSO CITES BINGEL'S STATISTICS DEALING WITH 937 CASES OF DIPHTHERIA OBSERVED BY HIM IN THE EPIDEMIC OF 1913-16, IN WHICH ANTI-DIPHTHERIA AND NORMAL SERUM WAS EMPLOYED IN AN EQUAL DEGREE. THE STATISTICS OF MORTALITY IN BOTH GROUPS WERE ALIKE."

Page 305.

"AN ANALYSIS OF THE DATA OBTAINED DURING THE STUDY OF TETANUS ENABLED ME TO FORMULATE MY POINT OF VIEW ON THIS SUBJECT. BUT THE PATHOGENIC KINSHIP BETWEEN TETANUS AND DIPHTHERIA IS OBVIOUS. THE DIFFERENCE DEPENDS ON THE NERVE STRUCTURES WHICH, BECAUSE OF THEIR SENSITIVITY, ARE THE FIRST TO ENTER INTO COMBINATION WITH THE TOXIN AND THUS BEGIN THE PROCESS.

"It is well known that, to produce an effect, it is advantageous to inject tetanus toxin into tissues (cellular tissue, muscles) rather than into the blood, while with diphtheria toxin the reverse is the case. At the same time,

our experiments with 'pumping' showed that, under certain conditions, if the anti-toxin reaches the region of the central nervous system, it ensures the recovery of animals which otherwise are bound to die. IT IS CLEAR FROM THIS THAT IN EXPERIMENTAL DIPHTHERIA THE RECEPTORS OF THE SPECIAL FORM OF IRRITATION ARE TO BE FOUND SOMEWHERE IN THE SPINAL CORD OR BRAIN. Other nerve mechanisms, not the same as in tetanus, become involved in the pathological process.

"Whatever the difference in details between spontaneous human diphtheria AND THE PROCESS ARTIFICIALLY EVOKED BY THE TOXIN, IT DOES NOT PLAY ANY PART IN DECIDING THE QUESTION FROM THE POINT OF VIEW OF PRINCIPLE."

"DIPHTHERIA IN MAN CAN ALSO BE DIVIDED EASILY INTO TWO PERIODS. THEY ARE BOTH CONNECTED WITH PROCESSES OF A NERVOUS NATURE.

"At the outset, the toxin is the irritating agent. IT PRODUCES PATHOLOGICAL CHANGES IN THE NERVOUS SYSTEM, WHICH IN THE FIRST PERIOD HAVE A FUNCTIONAL CHARACTER. This indicates that the pathological process is maintained only from the focus WHERE THE NERVE ELEMENTS ARE DIRECTLY IRRITATED BY THE TOXIN, but the latter has not yet managed to inflict irreparable damage on them. The removal of the irritating agent is here removal of the irritation and specific serum will certainly give a positive effect.

"THE SECOND PERIOD BEGINS WITH A CHANGE IN THE CAUSES OF THE PROCESS, i.e., FROM THE MOMENT WHEN THE DAMAGED NERVE ELEMENTS THEMSELVES BECOME THE SOURCE OF IRRITATION.

"The time of the transition of diphtheria from one period to the other must not be calculated in a formal fashion. Both individual peculiarities and epidemiological factors, in the broad socio-biological interpretation of the word, can shorten or lengthen it. IT IS HIGHLY PROBABLE THAT IN MANY CASES THE SECOND PERIOD BEGINS ALMOST SIMULTANEOUSLY WITH THE FIRST, WHICH EXPLAINS FAILURES IN SPECIFIC TREATMENT, EVEN THOUGH APPLIED IN GOOD TIME AND IN HEROIC DOSES."

Pages 306-307.

"THERE IS NO DOUBT THAT HERE SOME SPECIAL KIND OF IRRITATION WAS PASSED ON TO THE CENTRE, SERVING AS THE ORIGINATOR OF A COMPLEX REACTION WITH A DEFINITE CYCLE OF DEVELOPMENT. IT WAS ESTABLISHED THAT THE CHARACTER OF THIS REACTION IS DETERMINED AT THE MOMENT WHEN THE TOXIN COMES INTO CONTACT WITH THE PERIPHERAL NERVE APPARATUS. THE PARTICIPATION OF OTHER NERVE PARTS IS CONDITIONED BY THIS PROCESS."

Page 308.

"As early as 1892, Professor N. E. Vedensky secured data capable of shaking the sanctified views on this subject. Subsequently, in the laboratory of Professor A. A. Ukhtomsky, who developed THE THEORY OF DOMI-

NANTS, MANY NEW FACTS WERE OBTAINED PROVIDING EVIDENCE THAT 'THE NERVE IS AN APPARATUS NOT ONLY UNUSUALLY LABILE . . . BUT AN APPARATUS OF VARYING LABILITY, DESIGNED FOR FAITHFUL REPRODUCTION OF DIVERSE FORMS AND RHYTHMS OF EXCITATION.' Professor A. A. Ukhtomsky's school defends this proposition against the theory of THE UNIFORMITY OF NERVE IMPULSES AND AGAINST THE 'ALL OR NOTHING' PRINCIPLE. Views closely allied to this were enunciated by Garten, who spoke of the presence of 'inherent rhythms' of excitation in different tissues, and also by Lapicque and Pieron.

"In 1923, a new work of Paul Weiss appeared, containing data of his experiments on the transplantation of extremities and isolated muscles in amphibians. The facts communicated by him at first aroused perplexity, but on testing they were completely confirmed. The basic phenomenon was as follows. A particular muscle is transplanted from one animal to another. In its new place a nerve branch is directed to it from the nearest nerve. By this means, connection is gradually established between the muscle and the central nervous system. WHEN THIS HAS TAKEN PLACE, THE MUSCLE BEGINS TO CONTRACT, BUT IN AN ABSOLUTELY DIFFERENT WAY FROM WHAT MIGHT HAVE BEEN ANTICIPATED; THE CONTRACTION OF THE TRANSPLANTED MUSCLE NOW TAKES PLACE SIMULTANEOUSLY WITH THAT OF THE SAME MUSCLES IN THE NEW HOST. Thus, when m. gastrocnemius is transplanted into a fore extremity and connected with one of the nerves of the brachial plexus, it will contract, not at the same time as the muscles of the fore extremities, BUT WHEN THE M. GASTROCNEMIUS OF THE NEW HOST CONTRACTS.

"The experiment can be made in several variations, but these do not introduce anything substantially new. To explain this phenomenon, Weiss proposed the 'resonance theory,' ENVISAGING MUTUAL INTERACTION OF THE STATIONS OF DESPATCH AND DESTINATION, the latter playing the chief part for it has to 'answer the call,' whatever the route — direct or roundabout — by which the given wave of excitation spreads. It is clear that this is possible only on the assumption OF QUALITATIVE DIFFERENCES IN THE CHARACTER OF THE PROCESS WHICH PROCEEDS ALONG THE NERVE AND IS TERMED EXCITATION." Pages 308-309.

"THERE IS ABSOLUTELY NO DOUBT THAT SUCH FACTS ARE WIDELY ENCOUNTERED IN THE HUMAN CLINIC. A DISEASE GETS ITS NAME NOT FROM THE CAUSE, BUT FROM ONE OF THE NUMEROUS CONSEQUENCES, AND OFTEN ENOUGH FROM THAT ONE WHICH IN THE WHOLE COURSE OF THE PROCESS IS PERHAPS LESS CULPABLE THAN THE REST." Page 310.

"IT IS WELL KNOWN THAT WHILE RECOGNIZING MENINGITIS TO BE AN INFECTIOUS DISEASE, WE HAVE ALMOST NO GROUNDS FOR REGARDING IT AS CONTAGIOUS. Rare cases of family meningitis are no evidence, since we find here that besides infection a large number of other conditions also coincide. CONTACT WITH MENINGOCOCCUS IS NOT

SUFFICIENT BY ITSELF FOR THE DISEASE TO DEVELOP. SOME OTHER PROCESS TAKES PLACE IN ADVANCE, preparing the situation in which the interaction of the macro-organism and micro-organism will subsequently take place. NOW, IF THAT IS THE CASE, WHAT PRACTICAL USE DO WE GET FROM OUR KNOWLEDGE OF THE MENINGOCOCCUS? DOES IT HELP US TO EXPLAIN ANYTHING?

“IN HAVING RECOURSE TO SPECIFIC (SERUM) TREATMENT OF MENINGITIS, WE EXPECT TO DO AWAY WITH THE MICROBE. BUT THE LATTER ITSELF APPEARS ONLY AS THE CONSEQUENCE OF ANOTHER CAUSE. TO ABOLISH THE MICROBE AND TO LEAVE THE CONDITIONS IN FORCE WHICH MADE IT PATHOGENIC—SUCH A FORMULATION CAN HARDLY SATISFY ANYONE, THE MORE SO, SINCE THE TASK OF REMOVING THE MICROBE IS FAR FROM SIMPLE TO FULFIL.

“Specific reactions merely deprive the microbe of its capacity of being an irritating agent, they neutralize the microbe, converting it into a saprophyte. They by no means always destroy it physically. It is precisely this that has given rise to the fear of bacteria-carriers and the constant precautions for sterilization in the case of patients recovering from scarlatina, diphtheria, typhus, etc.

“Almost thirty years have passed since the first proposals for serum treatment of meningitis (Kolle and Wassermann). The period has been sufficient both for perfecting the original preparation and for clearing up the question of its actual value. In point of fact, however, even now we have not gone outside the sphere of primitive experiment. Every year we try new sera, prepared by means of new, merely accidental, antigens, and every year, after a short period of rapture, we have to regret the shattering of our illusions.

“AT TIMES, THE DESIRE TO OBTAIN AT ALL COSTS A SPECIFIC EFFECT FROM THE USE OF SERUM IN MENINGITIS PUTS PHYSICIANS IN A DEFINITELY FALSE POSITION. FOR INSTANCE, I KNOW OF CASES WHERE CHILDREN 3-6 YEARS OLD HAVE BEEN GIVEN AS MANY AS FIVE TO NINE INJECTIONS OF SERUM DURING 4-8 WEEKS. During this period some of the patients received injections amounting to 600-900 c.c. of serum. THEIR RECOVERY WAS ACCOUNTED A TRIUMPH OF SPECIFIC THERAPY, IN SPITE OF THE FACT THAT THE FAVORABLE TURNING POINT IN THE PROCESS BEGAN AFTER THE SIXTH OR NINTH INJECTION. IT MAY BE ASKED, WHY WERE THE FIRST INJECTIONS A FAILURE? Why did the nth portion of serum preparation, WHICH UP TILL THEN HAD BEEN INDIFFERENT, SUDDENLY ACQUIRE PROPERTIES OF SPECIFIC ACTION BOTH ON THE DISEASE AND ON THE MICROBE?

“DOUBTS OF THIS SORT ARE, APPARENTLY, FINDING THEIR WAY ALSO INTO THE CLINIC; AT ANY RATE, THE BEHAVIOR OF MEDICAL PRACTITIONERS IS SUFFICIENTLY CLEAR EVIDENCE OF SUCH DOUBTS. WITHOUT RENOUNCING SERUM, AND ALONGSIDE OF IT,

THE CLINIC MAKES THE MOST ENERGETIC USE OF ALL OTHER FORMS OF THERAPEUTIC OPERATIONS IN TREATING MENINGITIS. IT IS PRACTICALLY IMPOSSIBLE TO FIND CLEAR CASES AMONG ITS MATERIAL. IN SPITE OF THIS, IN ITS GENERAL CONCLUSIONS THE CLINIC IS BOUND BY TRADITION. IF THE FAVORABLE TURNING POINT OF THE DISEASE COINCIDES IN TIME WITH ONE OF THE NUMEROUS INJECTIONS OF SERUM, THEN THE EFFECT IS ASCRIBED PRECISELY TO THE LATTER AND ACCOUNTED SPECIFIC. HOPE SPRINGS UP ANEW, WORK IS CONCENTRATED ON THE SEARCH FOR THE NECESSARY MICROBE AND THE MOST SUBTLE DIFFERENTIATION OF ITS PROPERTIES, NEW SERA ARE PREPARED AND NEW SERIES OF CLINICAL TESTS ARE PERFORMED.

"THE LABORATORY SUPPORTS THE CLINIC WITH ALL ITS FORCE. BY MEANS OF CONTROLLED EXPERIMENTS IT PROVES THAT, ON MIXING VIRULENT MENIGOCOCCUS WITH VARIOUS DOSES OF SPECIFIC SERUM, IT IS NOT ABLE TO PRODUCE MENINGITIS IN RABBITS EVEN ON SUB-OCCIPITAL OR INTRA-CEREBRAL INOCULATION. Such, for instance, were the recent experiments of Professor P. F. Zdrodovsky and his collaborators. These experiments are undoubtedly interesting, but they only prove that it is possible to produce meningitis in the rabbit BY IMMEDIATE INJECTION OF THE VIRUS INTO THE REGION OF THE CENTRAL NERVOUS SYSTEM and that in such cases even minimal quantities of anti-meningococcus serum actually have a specific effect. These facts, however, ONLY MAKE IT MORE INCOMPREHENSIBLE WHY THE SAME SERUM, EMPLOYED IN ENORMOUS DOSES, PROVES TO BE USELESS IN SPONTANEOUS MENINGITIS OF HUMAN BEINGS, IN SPITE OF THE FACT THAT IT IS INJECTED DIRECTLY INTO THE REGION AFFECTED.

"The fact that it is possible to produce meningitis in rabbits in the experiment with intra-cerebral injection of meningococcus, HAS NO PRECISE SIGNIFICANCE."

Pages 310-312.

"When the kidney lies in the path of development of the dystrophic process EVOKED BY IRRITATING THE NERVE APPARATUS of the ovary or testicle, it is the first organ to be affected by tuberculosis. IF THE SAME PROCESS ARISES IN ANOTHER PLACE, IT REMAINS HEALTHY TO THE END."

Page 312.

"THE NERVOUS SYSTEM IN ITSELF IS BOTH CENTRE AND PERIPHERY. BIO-CHEMICAL PROCESSES TAKING PLACE IN IT ARE SUBJECT TO THE SAME NERVE REGULATION AS IN THE LIVER, HEART, SKELETAL MUSCLES, ETC. THE CREATION OF TEMPORARY OR PERMANENT PATHOLOGICAL NERVE COMBINATIONS RESULTS IN THE DEVELOPMENT OF PATHOLOGICAL PROCESSES IN VARIOUS ORGANS, INCLUDING THOSE IN THE NERVOUS SYSTEM ITSELF."

Page 312.

"THE MOST WE CAN EXPECT HERE IS THE ELIMINATION OF THE ADDITIONAL IRRITATION BY THE REMOVAL OF THE MICROBE; BUT

IT IS PRECISELY THIS THAT IMMUNITY DOES NOT GUARANTEE. THE MICROBE PERISHES IN THE NORMAL TISSUES, EVEN IN THE IMMEDIATE VICINITY OF THE PATHOLOGICALLY ALTERED PARTS WHERE IT IS ABLE TO MAINTAIN ITSELF, AS LONG AS THIS VICINITY RETAINS ITS NORMAL BIO-CHEMICAL, AND HENCE FUNCTIONAL, STATE. IF THE FIRST CHANGES, WHICH WERE THE CAUSE OF THE TISSUE DYSTROPHY, PROVE TO BE TEMPORARY AND GRADUALLY PASS AWAY, THEN THE TISSUE ALTERATIONS ALSO DISAPPEAR AND THE MICROBE DISAPPEARS ALONG WITH THEM. NO SPECIAL FORM OF IMMUNITY IS REQUIRED FOR THIS.

"We know very well that appropriately prepared serum cannot help having specific properties. IN CASES WHERE IT DOES NOT PRODUCE ANY EFFECT IN THE ORGANISM, IS THIS NOT A PROOF THAT THE REACTIONS MENTIONED DO NOT PLAY ANY PART IN THE GIVEN PROCESS? IT IS DIFFICULT TO RENOUNCE HABITUAL AND LONG-ESTABLISHED VIEWS AND ESPECIALLY TO MAKE UP ONE'S MIND TO CHOOSE A NEW LINE OF BEHAVIOR. But this choice has already been made unconsciously; the preparation of sera against diphtheria and tetanus is a task undertaken by every institute working in the sphere of immunology. THE PRODUCTION OF OTHER SERA PROCEEDS WITHOUT ANY PLAN, ACCORDING TO THE INCLINATIONS OF INDIVIDUAL WORKERS, ACCIDENTALLY ACQUIRING OR LOSING INTEREST IN A PARTICULAR QUESTION.

"THE TIME HAS COME TO MAKE A REVALUATION OF THE WHOLE SITUATION FROM THE VERY BEGINNING. WHAT WE HAVE OBSERVED MAKES DOUBT LEGITIMATE, AND WE VENTURE TO DENY THAT RECOVERY FROM CEREBRO-SPINAL MENINGITIS IS THE RESULT OF IMMUNO-BIOLOGICAL REACTIONS. Even when anti-meningococcus serum gives an apparently clear therapeutic effect, THE LATTER MAY DEPEND NOT ON THE SPECIFIC PROPERTIES OF THE SERUM BUT ON THE ADDITIONAL IRRITATION WHICH PROVES USEFUL IN THE GIVEN CASE BY CAUSING THE NECESSARY TRANSFORMATION OF THE STATE OF THE ORGANISM.

"The fact that cerebro-spinal meningitis often occurs epidemically CANNOT ALTER THE MATTER. Acquaintance with the microbe—the undoubted initiator of many forms of individual and mass diseases—was a great advance in the investigation of the pathology of infection; herein consists the magnificent service rendered by Pasteur. But at the same time it has artificially simplified reality, MAKING IT POSSIBLE TO UNITE PROCESSES BETWEEN WHICH THERE IS ONLY AN EXTERNAL RESEMBLANCE, ON THE STRENGTH OF A SINGLE, AND OFTEN ACCIDENTAL, CHARACTERISTIC.

"We know from the data of the epidemiology of cholera that it is preceded, accompanied and followed by so-called cholera-like diseases. Externally, these are in no way different from cholera (diarrhoea, vomiting, convulsions, coldness of the extremities, lowered pulse, etc.); BUT THE CHOLERA

MICROBE CANNOT BE DISCOVERED IN THE PATIENTS' ORGANISM. CONSEQUENTLY, THE EXTERNAL FORM OF THE DISEASE HERE IS NOT NECESSARILY CONNECTED WITH THE CHOLERA VIBRIO."

Page 314.

"If, during periods of cholera epidemics, the whole complex of cholera symptoms IS EXHIBITED WITHOUT PARTICIPATION OF THE CORRESPONDING MICROBE, IT MEANS THAT NUMBERS OF PERSONS, USUALLY LIVING IN ONE LOCALITY AND OFTEN IN SIMILAR SOCIAL CIRCUMSTANCES, ARE SUBJECTED SIMULTANEOUSLY TO THE INFLUENCE OF SIMILAR BUT UNUSUAL IRRITATIONS, CREATING A DEFINITE FORM OF 'PREDISPOSITION' IN THE ORGANISM. THE ADDITIONAL IRRITATION (IN OUR TERMINOLOGY, THE SECOND 'BLOW') TRANSFORMS THE HIDDEN STATE OF PREDISPOSITION INTO A CLEARLY REVEALED PROCESS."

Page 314.

"THE ACTIVITY OF THE MICROBE IN THIS CASE BECOMES MERELY THE ACTIVITY OF A CATALYZING AGENT.

"CAN THE CHOLERA MICROBE PRODUCE THE TYPICAL SYNDROME OF THE DISEASE IN THE HEALTHY ORGANISM? I am, of course, speaking here of human beings, as the vibrio is in general not pathogenic for the majority of animals.

"Curiously enough, it is difficult to settle this question. Cases of laboratory infection do not give a definite answer, since, firstly, there are very few such cases, and, secondly, THE RESULTS OBTAINED ARE CONTRADICTORY. Best known is the experiment made in I. I. Mechnikov's laboratory. Several of his collaborators administered to themselves per os a definite quantity of pure culture of cholera vibrio. One of them quickly became ill with symptoms of acute gastro-enteritis; THE REST REMAINED HEALTHY. THUS, WE HAVE NO DATA FOR DECIDING IN WHAT PRECISE WAY THE MICROBE ACTED HERE — whether it was the actual initiator of the process, or only facilitated its more rapid appearance.

"It does not follow from this that the cholera vibrio is in general innocuous, and that the danger of its presence, for instance, in water reservoirs, is exaggerated, since both its properties as a catalyzing agent and its capacity to add something that aggravates the basic process are reflected in the statistics of cholera sickness and mortality. BUT IN PATHOLOGY, i.e., IN THE THEORY OF THE ORIGIN AND FORMATION OF DISEASES, IT IS NECESSARY TO DETHRONE IT, OR, MORE CORRECTLY, TO ASSESS IT AT ITS REAL VALUE; OTHERWISE WE SHALL NOT FIND OUR WAY OUT OF THE MENTAL BLIND ALLEY INTO WHICH PATHOLOGY HAS BEEN DRIVEN BY THE ACCUMULATION OF CONTRADICTIONS."

Pages 314-315.

"CASES OF FAMILY GRIPPE ARE EASILY EXPLAINED BY THE UNIFORMITY OF CONSTITUTION AND SIMILARITY OF CONDITIONS OF LIFE AND ENVIRONMENT. FINALLY, THE EPIDEMIOLOGY OF GRIPPE INCLUDES FORMS OF ITS SPREADING WHICH ARE INCOMPATIBLE

WITH THE IDEA OF INFECTION. THUS, IN ONE YEAR, GRIPPE STARTING FROM BERLIN MOVES TO MOSCOW. THE THEORY OF INFECTION DOES NOT ANSWER THESE QUESTIONS, CONSEQUENTLY THE SOLUTION MUST BE SOUGHT IN OTHER SPHERES.

"The old Russian term 'pevetrye' has been replaced by the term 'epidemic'. Nevertheless, the old term still contains a particle of truth. Our experiments showed that bacterial, chemical and physical agents were alike capable of beginning dystrophic processes WITHIN THE NETWORK OF THE NERVOUS SYSTEM; in their further course, these processes did not remain indefinite but, on the contrary, easily took on particular qualitative forms. IN THE HUGE COMPLEX OF INFLUENCES COMPRISED IN THE WORDS CLIMATE, SEASON, METEOROLOGICAL CONDITIONS, ETC., THE ANALYSIS OF THE SIGNIFICANCE OF THE SEPARATE PARTS AND THEIR COMBINATIONS IS FAR FROM COMPLETE. IT IS MORE THAN PROBABLE THAT MANY OF THEM DO NOT ACT, AS IS USUALLY SUPPOSED, IN A GENERAL WAY, 'UNDERMINING THE RESISTANCE OF THE ORGANISM' (?), BUT IN A PARTICULAR WAY, PRODUCING A DEFINITE FORM OF TRANSFORMATION IN THE NERVOUS SYSTEM OF ANIMALS OF THE SAME SPECIES.

"Returning to the basic subject of our exposition, I raise the question: DOES ALL THIS IMPLY THAT CEREBRO-SPINAL MENINGITIS, CHOLERA AND CERTAIN OTHER EPIDEMIC DISEASES DO NOT BELONG TO THE CATEGORY OF SPECIFIC PROCESSES? No, it does not; THESE DISEASES ARE UNDOUBTEDLY SPECIFIC, BUT SPECIFICITY MUST, AS WAS MENTIONED MORE THAN ONCE, BE ASSESSED BY QUITE OTHER MEANS THAN WERE PREVIOUSLY USED.

"The infectious process obtains its definite form and cyclical course AS A RESULT OF THE CONSTANCY OF THE NERVE MECHANISM UNDERLYING IT.

"The microbe discovered in the foci of the affected parts can participate in three aspects. Either it is the producing agent, i.e., the actual initiator of the process (as in plague, glanders, anthrax, etc.); or it acts as a specific catalyzing agent, i.e., IT FACILITATES THE OCCURRENCE OF A PROCESS ALREADY PREPARED FOR BEFOREHAND BY THE ACTION OF OTHER AGENTS; or, finally, IT MERELY MAKES ITS APPEARANCE IN TISSUES THE BIOLOGICAL CONDITION OF WHICH HAS BEEN ALTERED IN A DIRECTION THAT IS FAVORABLE PRECISELY FOR THIS MICROBE AND NO OTHER. IN THE LAST CASE, IT IS ONLY AN INDICATOR OF THE PROCESS ALREADY PRESENT." Pages 315-316.

"In gradually rendering the spirochaete harmless, in depriving it of its property as an irritant, the organism does not kill it. IT LIVES ON PEACEFUL TERMS WITH IT, AS IT LIVES WITH THE BACILLI OF TUBERCULOSIS AND MANY OTHER PATHOGENIC AND NON-PATHOGENIC MICROBES. AS A RESULT, WE HAVE SPIROCHAETOSIS; BUT FROM SPIROCHAETOSIS TO SYPHILIS IS STILL A LONG WAY.

"The second process, THE BEGINNING OF WHICH COINCIDES WITH THAT OF THE FIRST, IS THE IRRITATION OF THE NERVE ELEMENTS IN THE TISSUES AT THE PLACE OF INFECTION.

"To obtain sclerosis in rabbits, it is essential to make the inoculation in the skin tissue. The significance of this circumstance has already been repeatedly emphasized by me in analyzing the genesis of a number of other processes. It is precisely here, in the region of the peripheral nerve apparatus, that the process which subsequently gets the name of syphilis has its inception. At this point, the spirochaete irritates the organism not merely as an antigen. The reaction which it evokes here has nothing to do with immunity reactions. BY ENTERING INTO INTIMATE ASSOCIATION WITH THE NERVE APPARATUS, IT BECOMES A SPECIFIC NERVE IRRITANT, it operates the starting lever of the fatal mechanism already known to us; once this mechanism is started, it continues like clock-work, and the process develops step by step, gradually involving the whole organism. IF, AT THE MOMENT OF INFECTION, THE SPIROCHAETE PENETRATES ONLY INTO THE CIRCULATORY SYSTEM WHILE THE NERVE APPARATUS AT THE PERIPHERY FOR SOME REASON REMAINS UNTOUCHED, SYPHILIS WILL NOT DEVELOP, THE MATTER WILL NOT GO BEYOND SPIROCHAETOSIS AND WE OBTAIN A 'NULLER' ". Pages 316-317.

"The irritation caused by the spirochaete at any point of the nerve network does not die out but passes into the characteristic form of a remittent process. Thus, when sclerosis has appeared, it rapidly attains a definite or, more correctly, marginal size, beyond which it does not spread and, AFTER PERSISTING FOR A SHORT TIME, IT VANISHES, QUITE APART FROM WHETHER TREATMENT IS APPLIED OR NOT. A pause then ensues, followed by a roseolous rash, then again a pause, and so on, through a series of new local foci and new pauses. THE RESULT IS A DEFINITE CYCLE OF PERIODS OF AFFECTION AND FREE INTERVALS. THIS ALONE OUGHT TO TURN ATTENTION IN THE DIRECTION OF THE NERVOUS SYSTEM FOR WHICH A RHYTHMIC FORM OF ACTIVITY IS CHARACTERISTIC."

Page 318.

"BUT WE HAVE ALREADY MORE THAN ONCE SEEN THAT WHEN THE REMOTE CONSEQUENCES OF CERTAIN FORMS OF NERVE TRAUMA ARE TAKEN INTO CONSIDERATION, THE WEAKNESS OF THE IRRIGATING AGENT PROVES TO BE THE SOURCE OF ITS STRENGTH. The terrible devastation which is sometimes wrought in the organism by syphilis during the later stages IS CONNECTED PRECISELY WITH THIS FACT.

"TO CURE SYPHILIS MEANS TO ARREST THE PROGRESS OF THE NEURODYSTROPHIC PROCESS WITHIN THE NERVOUS SYSTEM. THEN THE SPIROCHAETE WILL DISAPPEAR OF ITSELF, JUST AS IT DISAPPEARS FROM THE SCLEROSIS WITHOUT ANY TREATMENT DURING THE 'REGRESSIVE DEVELOPMENT' OF THE LATTER, AS A RESULT OF CHANGES IN THE STATE OF THE TISSUES IN THIS REGION."

Page 318.

"IN THE HUMAN CLINIC, THEREFORE, THE TUBERCULOSIS BACILLI ARE ONLY VERY RARELY THE INITIATORS OF THE DISEASE."

Pages 318-319.

"IN CASES OF SPONTANEOUS TUBERCULOSIS, IT IS FUTILE TO INCREASE IMMUNITY BY THE INTRODUCTION OF LIVE OR DEAD VIRUS OF SPECIFIC ANTI-BODIES. IN OUR EXPERIMENTS ON THE INFECTION OF VARIOUS PLACES OF THE GASTRO-INTESTINAL CANAL OF RABBITS WITH TUBERCULOSIS, WE SAW THAT IN ONE AND THE SAME ANIMAL, IN ONE AND THE SAME SYSTEM OF ORGANS, THE MICROBES BEHAVE DIFFERENTLY AT TWO ALMOST NEIGHBORING PLACES. IN ONE PLACE, THEY PRODUCE GENERALIZATION OF THE PROCESS BEYOND THE LIMITS OF THE INJECTION; IN THE OTHER, THEY PERISH, SOMETIMES SO RAPIDLY THAT IT IS NOT EVEN POSSIBLE TO DISCOVER THE SPOT. NO ATTRIBUTES OF THE MICROBE, NEITHER ITS RESISTANCE TO ACIDS NOR ITS WAXY COVERINGS, SAVE IT FROM ANNIHILATION. IT IS CLEAR THAT THE ROLE OF THE WAXY COVERING OF THE TUBERCULOSIS BACILLUS AS AN ABSOLUTE FACTOR IN ITS RESISTIVE CAPACITY IS A LEGEND WHICH IT IS TIME TO CAST INTO OBLIVION.

"Artificial immunization can only safeguard against active tuberculosis, and does not save from passive tuberculosis, where the microbe only initiates another process. THE DANGER OF TUBERCULOSIS IS THE DANGER OF THOSE FORMS OF DYSTROPHY WITH WHICH THE MICROBE BECOMES ASSOCIATED SECONDARILY. EVERYTHING THAT IS CAPABLE OF INTENSIFYING THE DYSTROPHY INCREASES BOTH THE VOLUME AND THE EXTENT OF TUBERCULOSIS EVEN IF THE SAME MEANS RAISES SPECIFIC IMMUNITY TO THE HIGHEST LEVEL.

"In the case of syphilis, we saw that the antigenic properties of the spirochaete and its capacity of being a nerve irritant are connected; on the attainment of immunity, a new inoculation of virus does not produce any visible reaction. This does not happen in tuberculosis. IMMUNITY DOES NOT DEPRIVE THE ANTIGEN OF ITS PROPERTY OF BEING A NERVE IRRITANT, AND TUBERCULIN MAY EASILY INTENSIFY THE ALREADY EXISTING DYSTROPHIC PROCESS. Instead of the old foci being eliminated, new ones are formed, for the existence of immunity does not affect the capacity of the microbe to live in the tissues of the immune animal. AT THE PRESENT TIME, THE CLINIC HAS WITNESSED SO MANY FAILURES FROM THE APPLICATION OF SPECIFIC THERAPY IN TUBERCULOSIS THAT IT HAS BEEN ALMOST ENTIRELY GIVEN UP. Only in eye practice is tuberculin still sometimes employed as a means of treatment. But if tuberculin is useful only in the case of tuberculosis of the eye, then the solution of this riddle must be sought not in tuberculosis, but in the eye."

Pages 319-320.

"Up to the present day, this could not be done, for the term 'specificity' has been understood as indicating a regularity of a very limited order, as a phenomenon 'sui generis,' signaling, as it were, the impossibility of further analysis. To call a process 'specific' has meant, in essence, only to register it.

"This procedure is admissible in regard to biological processes, since we judge of the specific qualities of an agent by the reactions of the substratum on which it acts, i.e., by the reactions of a complicated system of exactly regulated parts. Either we must give up recognizing the history of development altogether, or, if we take it into account, we must draw the appropriate conclusions. How is it possible to assume that living protoplasm has retained its capacity for progressive development in spite of the infinite diversity of forms of resistance to which it has been subjected in the course of millions of years, finally giving rise to man, and that it has, nevertheless, remained dependent on innumerable specific agents ready at every moment to cause it to exhibit afresh some sort of unprecedented properties?

"Invading this system from outside, the foreign agent evokes a reaction in elements WHICH ARE NOT INDEPENDENT at any moment of their existence. EACH FORMS PART OF MANIFOLD AND DEFINITE WORKING UNITS, AND THE LATTER IN THEIR TURN, ARE LINKED WITH ONE ANOTHER BY A SYSTEM OF CONNECTIONS. Physiological stimuli bring definite mechanisms into action for a definite period. Subsequently the process dies away or is automatically transferred to another region, for the order in which new links of the whole system are included is already predetermined in the function itself.

"How otherwise could a complex organism arise?

"We find closely similar regulations in pathology. The difference consists in the unusual character of the irritation and the points at which it arises. It is natural that under these conditions the functioning of physiological mechanisms will undergo pronounced alteration, but by no means in an anarchic fashion. THE PROCESS HAS ITS OWN ORDER, ITS OWN PLAN, AND, AS WE HAVE REPEATEDLY SEEN, THIS PLAN IS CONSISTENT AND STRICTLY DEFINED. Between its inception and its complete dying out, the process passes successively through several stages, the symptoms appear in a definite cycle allowing the registration of separate diseases and their systematization. However, the individuality or specificity of the processes is not absolute. We are aware how long a time elapsed before the old concept of 'fever' was differentiated into various forms of typhus — abdominal, exanthematic and remittent, how difficult it is even now to diagnose certain pathological forms, and on what minute details a correct decision rests.

"The same applies to the separate symptoms. Let us take the rash of measles and scarlatina. These could be accounted strictly specific reactions, were it not for cases of so-called idiosyncrasy, WHERE THE SAME IRRITATING AGENT PRODUCES IN DIFFERENT SUBJECTS, DIFFERENT KINDS OF RASH; IN ONE CASE, THE SCARLATINA TYPE, IN THE OTHER — THAT OF MEASLES. Every day, the clinic encounters such facts in various spheres of its work.

"HENCE, THERE ARE NO GENUINE SPECIFIC REACTIONS CONNECTED WITH ONLY ONE SPECIFIC IRRITATING AGENT. They all belong to the category of group reactions, only the number of producing agents in each group is different.

"Our task WAS TO ELUCIDATE THE BASIC MECHANICS COMMON TO ALL DISEASES; and the reader has seen that THE RESULTS OF EACH OF OUR EXPERIMENTS INVARIABLY TURNED OUR ATTENTION TO THE NERVOUS SYSTEM. The same happened in regard to the question of specific reactions. THE QUALITY OF THE IRRITATING AGENT PROVED TO BE ITS CAPACITY TO EVOKE IN THE NERVOUS SYSTEM THE CYCLICAL DEVELOPMENT OF A DEFINITE PROCESS, THE BASIC LAWS OF WHICH ARE CLOSELY AKIN TO THE LAWS OF THE PHENOMENA UNITED IN THIS BOOK UNDER THE NAME OF NEURODYSTROPHIC PROCESSES.

"A specific irritating agent DOES NOT EVOKE ONLY ONE FORM OF REACTION within the network of the nervous system. ORDINARY NERVE TRAUMA IS ALWAYS ADDED TO THE SPECIAL IRRITATION. The special form of the dystrophic process is accompanied by the standard form, and can even be entirely obscured by the latter; or, on the other hand, the standard form may begin to appear a long time after the special one has been eliminated. HEREIN LIES THE DANGER OF THOSE SPECIFIC METHODS OF TREATMENT WHICH ARE COMMONLY USED IN CLINICAL PRACTICE.

"MORE THAN ONCE, ISOLATED VOICES OF PHYSICIANS HAVE BEEN RAISED IN WARNING AGAINST THE SEDUCTION OF INOCULATIONS AND OF SO-CALLED DIAGNOSTIC TESTS (the reactions of Pirquet, Shick, Dick, etc.), WHICH ARE WIDELY USED IN SCHOOLS AND CHILDREN'S CLINICS. Such voices have not been heeded as they should have been, SINCE THEY ONLY POINTED OUT ISOLATED FACTS AND COULD NOT EXPLAIN THEM. Indeed they met with numerous objections on the part of those who held the view that skin inoculation tests are harmless on the ground that in the vast majority of cases such operations are not followed by any immediate harm.

"We see now that these arguments are inadequate. It is only possible to speak of the harmlessness of specific reactions, in cases where the producing agent actually possesses only specific properties; but such cases are practically impossible. The other process develops slowly and creeps in unnoticed. Its consequences belong to another category with the primary specific agent. THE FACTS ADDUCED IN THIS BOOK SETTLE THIS DEFINITELY, AND TO SHRINK FROM THE SOLUTION OF THE PROBLEM THUS RAISED WOULD BE CONSCIOUSLY (AND PERHAPS CRIMINALLY) TO CLOSE ONE'S EYES TO REALITY. THE PROCESS MAY BREAK OUT AFTER MANY WEEKS OR MONTHS AND BE MANIFESTED IN AN UNEXPECTED FORM, BEING, NEVERTHELESS, CASUALLY CONNECTED WITH AN OPERATION ABOUT WHICH BOTH DOCTOR AND PATIENT HAVE CEASED TO THINK.

"Of course, the consequences mentioned are neither inevitable nor necessarily ruinous. The danger in this respect should not be exaggerated, but it must also not be underestimated, especially in cases where the trauma is inflicted more than once on young animals.

"A characteristic feature of neuro-dystrophic processes is their capacity to leave behind in the network of the nervous system hidden traces which subsequently become sources of additional pathological stimuli, giving rise to new pathological foci. It is precisely by this means that the process spreads through all parts of the network. The repetition of an irritation from outside not only gives rise to a new process but may cause the revival of an old one that was to all appearance wholly extinguished. Such is the basis of our experiments with a 'second blow' which served as material for our concept of 'predisposition' — A CONCEPT WHICH THE PHYSICIANS HAVE NEVER ATTEMPTED TO EXPLAIN AND WHICH PREVIOUSLY WAS GIVEN THE NAME OF 'locus minoris resistentiae.'

"Our subsequent study of neuro-dystrophic processes showed that the question of the strength and weakness of the irritating agent is not so simple as it was believed to be, AND THAT IT DEPENDS ON THE COMBINATION OF MANY CONDITIONS, SINCE AN IRRITATING AGENT MAY BE WEAK WITH ONE STATE OF THE NERVOUS SYSTEM, AND STRONG WITH ANOTHER. Finally, it was established that in a number of cases we can speak of the strength or weakness of an irritating agent only in relation to reactions following shortly after the irritation; whereas in estimating the results right to the end, including the remote consequences, the concepts of strength or weakness may change places. THE APPEARANCE OF NEW FOCI OF IRRITATION TRANSFORMS THE NETWORK OF THE NERVOUS SYSTEM."

Pages 320-22.

"From this point of view there is no difference between the 'immortality' of the amoeba and the 'mortality' of the higher animals. In principle, both the one and the other are 'immortal' but advancing along the scale of perfection, the higher animals lose the possibility of making use of this property, SINCE UNDER COMPLICATED CONDITIONS OF LIFE THERE IS NO ENVIRONMENT WHICH WOULD GUARANTEE THEM FROM THE ACCIDENT OF AN UNUSUAL IRRITATION. IT IS SUFFICIENT THAT THIS SHOULD HAPPEN ONLY ONCE. The system of cumulative relations itself will do the rest. AS A RESULT, THE LEAST SCRATCH OR PRICK IS CAPABLE OF BEING A STIMULUS FOR SENESCENCE. The effect is enhanced if the scratch is accompanied by chemical irritation, especially from a substance of a protein nature which has the property of evoking SPECIAL FORMS OF IRRITATION."

Page 323.

"CONSEQUENTLY, THE CLINIC, AND ESPECIALLY THE CHILDREN'S CLINIC, SHOULD ACCURATELY ESTIMATE THE REAL NEED FOR SKIN TESTS AND ALL SORTS OF INOCULATIONS, AND BECOME QUITE CLEAR AS TO THE REALITY OF THEIR HARMLESSNESS; OTHERWISE, THE SO-CALLED 'ACHIEVEMENTS OF SCIENCE' MAY EASILY BE CONVERTED INTO ONE OF THE METHODS OF CRIPPLING HUMANITY.

"THIS QUESTION BECOMES ESPECIALLY ACUTE OWING TO THE FACT THAT THE EXISTING METHODS OF ACTIVE IMMUNIZATION OF HUMAN BEINGS ARE NOT UNANIMOUSLY ACCEPTED. IN THIS FIELD, WE HAVE MORE HOPES THAN ACHIEVEMENTS.

"EVEN THE INTERPRETATION ITSELF OF THE RESULTS OF MASS INOCULATIONS IS STRANGELY CONTRADICTORY AND AMBIGUOUS. ONE FREQUENTLY READS OR HEARS THAT EVEN IF ACTIVE IMMUNIZATION DOES NOT LOWER THE PERCENTAGE OF CASES OF DISEASE AMONG THOSE INOCULATED, STILL IT ALLEVIATES THE FORM AND COURSE OF THE PROCESS. SUPPOSING THIS TO BE TRUE, WHERE DOES SPECIFIC IMMUNITY COME IN? THE FORM OF THE GIVEN PATHOLOGICAL PROCESS MAY BE LIGHT OR SEVERE, BUT, ONCE IT HAS BEGUN, THIS MEANS THERE IS NO IMMUNITY."

Page 324.

"Two years ago, one of my friends, Professor B., developed abdominal typhus in the classical form which is not comparatively rarely met with. From the third week onwards, the bladder had to be emptied daily by a catheter. Even when the temperature had returned to normal and other symptoms had disappeared this operation had to be continued. As a result, the patient developed a slight cystitis, following which the typhus syndrome reappeared in the previous classical form and again lasted exactly three weeks. THE DISEASE REPRODUCED IN THE MOST PRECISE FASHION THE WHOLE COURSE OF THE PROCESS THAT HAD ONLY JUST COME TO AN END.

"I shall refrain from any categorical judgment as to the cause of the above-described relapse, but I CANNOT AVOID THE SUSPICION THAT IT WAS CAUSED BY THE SECOND 'BLOW' TO THE NERVOUS SYSTEM, in which the process taking place had not yet been fully extinguished. Careful study of analogous cases, which are not rare in the typhus clinic, would, of course, make it possible to obtain a more exact idea in regard to this subject. At the present moment, however, we are interested in a different matter.

"If, even in the exceptional conditions of immunization created by overcoming the disease, there is no guarantee against immediate heavy relapses, then it is clear that the severity of the process is not connected with so-called immunity reactions, and that the effect of inoculation mentioned above does not depend on specific anti-bodies alone. The repeated action of the specific agent in small doses TRAINS THE NERVOUS SYSTEM IN INCREASING ITS RESISTANCE TO THE GIVEN FORM OF IRRITATION AND PERHAPS ALSO TO A NUMBER OF OTHER IRRITATIONS OF A SIMILAR KIND."

Pages 324-25.

"BUT WHERE DOES DISEASE COME IN HERE? WHAT WE HAVE BEEN SPEAKING OF IS A NORMAL OR PHYSIOLOGICAL FUNCTION, DIRECTED TOWARDS ACTIVE MAINTENANCE OF THE EQUILIBRIUM BETWEEN THE ORGANISM AND ITS ENVIRONMENT."

Page 326.

"Finally, the third fact was established during the study of specific reactions, a number of features compelling us to include them in a special group of processes allied in type to nervous dystrophy. HENCE, WE HAVE COME TO REGARD INCUBATION AS THE TIME DURING WHICH THE IRRITATION ARISING FROM ONE OR SEVERAL NERVE POINTS DRAWS

OTHER PARTS OF THE NERVOUS SYSTEM INTO THE PROCESS AND BRINGS ABOUT TEMPORARY OR PERMANENT FUNCTIONAL CHANGES IN THEM.

"If that is the case, then not only the initial but also the second and third symptoms of the disease have their incubational period. INCUBATION LASTS FROM THE MOMENT OF IRRITATION UNTIL DEATH OR RECOVERY; the disease itself is considerably shorter since we are accustomed to measure it only from the time when external symptoms are found."

Page 327.

"Leaving out of account certain attempts (including the old investigations of Samuel and the recent work of Ricker) IT CAN BE SAID THAT NO REAL APPRAISAL OF THE NERVOUS FACTOR HAS EVER BEEN MADE FROM THE POINT OF VIEW OF GENERAL PATHOLOGY.

"At the beginning our work also had a sporadic character, passing from one subject to another according to the logic of the experiment itself. SUBSEQUENTLY, WHEN THE NEED FOR SYSTEMATIZING THE MATERIALS BECAME CLEARLY DEFINED, WE DISCOVERED ALSO THE INADEQUACY, OR MORE CORRECTLY, THE SIMPLE ABSENCE, OF THE NECESSARY BASIC PRINCIPLES."

Page 331.

"In setting to work, we, like everyone else, regarded neuro-trophic disturbances as a special form of reaction of the organism, forming the subject matter of a special chapter of pathology. The further our analysis of the subject advanced, the more necessary it became to enlarge the circle of phenomena WHERE THE NERVOUS COMPONENT IS THE FUNDAMENTAL PART OF THE PROCESS DETERMINING THE OUTCOME OF THE DISEASE AND THE FATE OF THE ANIMAL. I am not speaking here of various forms of vascular derangements, the nervous nature of which is sufficiently clear at the present time. Our work has shown that VARIOUS DESTRUCTIVE CHANGES, ACUTE AND CHRONIC INFLAMMATION, NEOPLASMS, AND EVEN TRAUMA, ARE CLOSELY CONNECTED WITH PROCESSES OF A NERVOUS CHARACTER. AT THE PRESENT MOMENT, WE ARE IN A POSITION TO ASSERT THAT NEURO-DYSTROPHIC PROCESSES ARE NOT CONFINED TO A LIMITED SPHERE, THAT THEY ENTER INTO THE COMPOSITION OF ALL PATHOLOGICAL PROCESSES WITHOUT EXCEPTION, ARE NOT SEPARABLE FROM THEM, AND, CONSEQUENTLY, DO NOT CONSTITUTE AND CANNOT CONSTITUTE A SEPARATE CHAPTER IN PATHOLOGY.

"In order to make clear the position adopted by us, it is necessary to turn to the history of the subject.

"THE TIME IS STILL QUITE RECENT WHEN THE EXISTENCE OF A TROPHIC FUNCTION OF THE NERVOUS SYSTEM WAS ONLY A MATTER FOR DEBATE. The controversy arose in the middle of the nineteenth century AND HAS PERSISTED TO OUR DAY. All will remember it; there is now no necessity to resuscitate its whole history, since the embittered disputes have gradually died down and we have, at last, the right to speak

of the trophic role of the nervous system without fearing to encounter objections at every step." Pages 331-332.

"Contemporary physiology STUDIES FRAGMENTS of processes under suitable and artificially created conditions—whereas medicine is occupied with LIFE IN THE TOTALITY of its simple and complex manifestations, including all those exceptional combinations WHICH ONLY NATURE KNOWS HOW TO PRODUCE. CONTEMPORARY PHYSIOLOGY IS STILL PRACTICALLY AN ANALYTICAL SCIENCE—MEDICINE HAS AT ALL TIMES BEEN INTERESTED ONLY IN SYNTHESIS, defending its right day by day to pursue its propositions to the end and to use them for practical purposes. This is the basic and inevitable feature of medicine; for medicine cannot be guided merely by the approbation of laboratory research, and it often maintains an independent attitude.

"SUCH A RUPTURE TOOK PLACE BETWEEN THE LABORATORY AND THE CLINIC IN REGARD TO THE QUESTION OF NEURO-TROPHIC PROCESSES, AND THE CLINIC HAS CONTINUED TO COLLECT AND SYSTEMATIZE THE RELEVANT MATERIAL IN ITS OWN WAY. An important part was played here by the experience of the World War, 1914-18. It became evident that the consequences of NERVE TRAUMATA are by no means restricted merely to anesthesia, pain, paralysis or vasomotor disturbances. A lively interest was once again awakened in neurotrophic phenomena. This attracted the attention of research laboratories, and proofs WERE AT LAST OBTAINED CAPABLE OF CONVINCING THE OLD PHYSIOLOGY OF THE EXISTENCE OF THE DIRECT INFLUENCE OF THE NERVOUS SYSTEM ON BIO-CHEMICAL PROCESSES in the tissues; these proofs were reinforced by the study of the nerve aspect of so-called vegetative processes. The foundations for this were laid even before the Word War, but it reached its full development only during recent years.

"It should be noted, by the way, that THE PROOFS NOW DISCOVERED BY PHYSIOLOGY WERE NECESSARY FOR PHYSIOLOGY ITSELF."

Page 333.

"At about the same time the classical experiment of Claude Bernard with 'sugar puncture' became widely known. The phenomenon observed by him has up to the present time not received a final appraisal, although it has been the subject of ardent research for sixty years, BUT THERE IS NO DOUBT THAT THE QUESTION OF THE ACTIVE PARTICIPATION OF THE NERVOUS SYSTEM IN THE PROCESSES OF METABOLIC REGULATION WAS THEREBY DEFINITELY RAISED.

"In 1884, the dissertation of V. I. Razumovsky appeared, DEALING WITH ATROPHIC PROCESSES IN BONES AFTER SEVERANCE OF THE NERVES."

Page 335.

"THE SYMPATHETIC NERVOUS SYSTEM WAS FOUND TO BE INCLUDED IN THE CENTRAL NERVOUS SYSTEM AND FUSED WITH IT MORPHOLOGICALLY AND FUNCTIONALLY TO SUCH AN EXTENT THAT IT BECAME SIMPLY IMPOSSIBLE TO SPEAK OF ANY EXACT

BOUNDARIES BETWEEN THEM. In the last resort, this made it necessary to separate under the name of the vegetative nervous system a special functional group, consisting of central portions, the sympathetic chain and the nerve structures within the organs at the periphery." Pages 335-336.

"MANY OF THESE WORKS PROVIDE GROUND FOR THINKING THAT THE NERVOUS SYSTEM HAS A REALLY DIRECT INFLUENCE ON THE COURSE OF PHYSICO-CHEMICAL PROCESSES IN THE ORGANISM."

Page 337.

"THE FACTS OBTAINED ARE NOT ONLY EVIDENCE OF THE EXISTENCE OF THE NEURO-HUMORAL REGULATION OF PHYSIOLOGICAL PROCESSES; THEY ONCE MORE CONFIRM THE THESIS THAT THE NERVOUS SYSTEM HAS A REALLY DIRECT INFLUENCE ON THE CHEMICAL PROCESSES IN THE TISSUES.

"SINCE THEN, AND ESPECIALLY IN RECENT YEARS, A LARGE NUMBER OF WORKS HAVE APPEARED DEALING WITH THE PARTICIPATION OF THE NERVOUS SYSTEM IN TISSUE METABOLISM. THESE WORKS RELATE TO VARIOUS BRANCHES OF PHYSIOLOGY, PATHOLOGY, AND MEDICAL PRACTICE."

Pages 338-339.

"At the present stage of science, the basic tasks are:

1. To establish the forms of this participation;
2. To obtain a concrete conception of the work of the corresponding nervous mechanisms.
3. TO DETERMINE THE LAWS OF A GENERAL AND SPECIAL CHARACTER APPLYING TO PROCESSES OF THIS NATURE."

Page 339.

"HOW IS IT POSSIBLE TO UNDERSTAND THAT, UNDER THE INFLUENCE OF A NERVE STIMULUS, A GLAND CELL PASSES FROM A STATE OF REST INTO ONE OF SECRETION, IF THIS ACT IS NOT LOOKED UPON AS DIRECT NERVE INFLUENCE ON TISSUE METABOLISM? THE NERVE IS SECRETORY ONLY BECAUSE IT IS TROPHIC. THE ONE CANNOT EXIST WITHOUT THE OTHER. If we deny this, what suffers is by no means the conception of trophic nerves, but that of secretory nerves. Motor, receptor and secretory nerve functions were noted as functions sui generis, and recognized without any struggle, ALTHOUGH THE ESSENCE OF THE PHENOMENA TAKING PLACE HERE STILL REMAINS UNKNOWN. THE THEORY OF TROPHIC NERVE FUNCTIONS ARISED A STORM OF OPPOSITION, ALTHOUGH WE CANNOT CONCEIVE OF ANY BIOLOGICAL PROCESSES WITHOUT CHANGES IN MATTER.

"The cause of the struggle that arose did not lie, therefore, in facts of direct contradictions. THE BASIC CAUSE LAY IN THE QUESTION BEING RAISED FROM THE VERY BEGINNING AS A QUESTION OF A SPECIAL AND COMPLETELY NEW NERVOUS FUNCTION, DISTINCT FROM THOSE PREVIOUSLY KNOWN."

Pages 339-340.

"IN A COMPLEX ORGANISM, THE NERVOUS COMPONENT ENTERS INTO THE COMPOSITION OF EVERY PROCESS WITHOUT EXCEPTION. THE CONCEPT OF AN ORGAN, OF ITS STRUCTURE AND FUNCTION, TAKES THIS INTO ACCOUNT, SINCE AN ATTEMPT TO CHANGE THE NERVE CONDITIONS OF AN ORGAN MAY EASILY LEAD TO THE LOSS OF THE ORGAN ITSELF.

"AS LONG AS A GIVEN TISSUE IS IN A NORMAL CONDITION, THE NEURO-TROPHIC PROCESSES IN IT REMAIN INVISIBLE PRECISELY BECAUSE THEY DETERMINE THE STATE OF NORMALITY. ANY CHANGE BEYOND THE USUAL LIMITS IS A SIGNAL OF THE TRANSITION TO PATHOLOGY. THIS IS WHY PATHOLOGY AND THE CLINIC ARE SO FAR AHEAD OF PHYSIOLOGY IN THIS QUESTION. PHYSIOLOGY, CLAIMING TO STUDY THE NORMAL STATE, FOR A LONG TIME HAD NO SUITABLE MEANS OF APPROACH TO THE PHENOMENA MENTIONED. THE INERTIA RESULTING FROM WHAT HAD BEEN USEFUL IN THE PAST PREVENTED A REVIEW OF THE BASIC PROPOSITIONS OF PHYSIOLOGY ITSELF, AND INSTEAD OF REVISING ITS OWN METHODS, THE FAILURE WAS ASCRIBED TO THE SUBJECT UNDER INVESTIGATION."

Page 340.

"HENCE, THE QUESTION OF THE DIRECT INFLUENCE OF THE NERVOUS SYSTEM ON THE COURSE OF PHYSICO-CHEMICAL PROCESSES IN THE ORGANISM WAS EVEN AT THAT TIME DECIDED POSITIVELY, not merely for tissues the functional state of which was easily distinguishable from the state of rest (glands) but also for others, where this difference is not pronounced. THESE INCLUDE FASCIÆ, TENDONS, BONES, ETC., THE PECULIAR FORMS OF AFFECTION OF THE BONES IN TABES DORSALIS, SEVERE LOCAL DESTRUCTION OF VARIOUS TISSUES IN SYRINGOMYELIA, AND, FURTHER, SUCH DISEASES AS MYOSITIS OSSIFICANS, WHERE BONE DEVELOPS IN THE PLACE OF MUSCLE TISSUE, LEFT NO DOUBT OF THEIR NERVOUS NATURE. They could not be explained either by simple atrophy from disuse or by vascular derangements."

"On looking for the cause of the demand that the phenomena of neurotrophism should be demonstrated in 'resting' tissue, one sees that it also is based on the question of an indicator. Facts which are convincing within the bounds of one science are not considered as proof by another. Hence, the origin of disagreements and an atmosphere of distrust and uneasiness.

Page 341.

"FINALLY, THERE IS YET ANOTHER QUESTION. THIS CONCERNS THE DIRECTION TAKEN AT THE PRESENT TIME BY THE THEORY OF THE VEGETATIVE NERVOUS SYSTEM."

Page 341.

"THIS, BY ITSELF, NOT ONLY STRENGTHENED THE POSITION OF THE NEW THEORY, BUT LED TO AN EXAGGERATED CONCEPTION OF THE ISOLATED NATURE OF VEGETATIVE NERVE FUNCTIONS, ISOLATED AS THEY WERE IN A SPECIAL SYSTEM. THIS WAS A REFLECTION OF TRADITION, AS AN ACT OF OBEISANCE TO THE OLD

THEORY OF LOCALIZATION, UNDERSTOOD IN A NARROW AND PURELY FORMAL MANNER. IT IS HERE THAT CRITICISM OUGHT TO BEGIN ITS WORK." Page 341.

"HOWEVER, IN ORDER TO GET A CLEAR IDEA OF THE WHOLE COMBINATION, IT IS NECESSARY TO ASSESS THE ACTUAL SIGNIFICANCE OF EACH COMPONENT, TO DEFINE EXACTLY WHAT MUST BE UNDERSTOOD BY THE TERM 'NERVE CENTRE.'" Page 342.

"THE USE OF THE FORMULA IS JUSTIFIED IN SUITABLE CASES, BUT IT DOES NOT GIVE ANY IDEA OF THE PROCESS THAT CREATED IT. IF, IN ANALYZING A COMPLEX NERVE REACTION, THE WHOLE PRELIMINARY PATH IS NOT TAKEN INTO ACCOUNT, THEN THE NERVE CENTRE WHICH CARRIES OUT THE COMPLETING PORTION IS ALSO ONLY A FRAGMENT OF THE PROCESS. WE RECOGNIZE AS A NERVE CENTRE ANY GROUP OF ELEMENTS, THE DIRECT IRRITATION OF WHICH RESULTS IN A DEFINITE ACTION AT THE PERIPHERY (IN GENERAL, MOVEMENT). BUT WITH THESE ELEMENTS, OTHERS ARE CONNECTED, AND IN NEW PARTS. IN A COMPLEX PHYSIOLOGICAL ACTION, EACH OF THESE LINKS, WHETHER PERMANENT OR ACCIDENTAL, IS A NERVE CENTRE. Thus, a nerve cell of the intestinal canal can be a centre for epilepsy. CONSEQUENTLY, THE VEGETATIVE NERVOUS SYSTEM IS NOT MORE INDEPENDENT THAN, LET US SAY, THE PYRAMIDAL SYSTEM AND OTHERS. THE NAME 'VEGETATIVE NERVOUS SYSTEM' MERELY UNITES A CERTAIN NUMBER OF WORKING FUNCTIONS BELONGING TO THOSE LOWER CENTRES THAT ARE CALLED UPON TO REALIZE THE LAST STAGES OF THE PROCESS.

"It does not follow from this that we deny the theory of localization altogether. We desire only that the concepts in this field should finally be made more precise. The differentiation of the nervous system, and the aggregation of nerve elements of the same designation into ganglia or centres, are facts that cannot be doubted. BUT THIS DOES NOT MEAN AT ALL THAT A PARTICULAR NERVOUS FUNCTION PROCEEDS WITHIN SPECIAL ELEMENTS FROM BEGINNING TO END." Page 342.

"The fact that vegetative functions were ascribed to the sympathetic nervous system CAN HAVE USEFUL CONSEQUENCES ONLY FOR ANALYTIC WORK; FOR SYNTHETIC WORK IT IS OF NO USE. Along this line it is possible to enlarge the conception of the special physiology of separate sympathetic structures and of their complexes; but, at the same time, it can strengthen an incorrect conception of the generalization of trophic nerve functions, enclosing it in the sphere of definite morphological associations.

"AS A RESULT OF SEVERAL YEARS OF WORK, MY COLLABORATORS AND I HAVE BECOME CONVINCED THAT IN STUDYING PROCESSES OF THIS NATURE THE TRADITIONAL SUBDIVISION OF THE NERVOUS SYSTEM INTO CENTRAL, PERIPHERAL, SYMPATHETIC, ETC., HAS NO JUSTIFICATION. MANY EXAMPLES IN THIS BOOK HAVE SHOWN THAT FROM ANY NERVE POINT IT IS EASY

TO BRING INTO ACTION NERVE MECHANISMS, THE FUNCTIONING OF WHICH TERMINATES AT THE PERIPHERY IN CHANGES OF A BIO-PHYSICO-CHEMICAL CHARACTER. LET US SUPPOSE THAT THE FINAL PART OF THE PROCESS IS REALIZED IN ALL CASES BY A PARTICULAR PORTION OF THE SO-CALLED VEGETATIVE NERVOUS SYSTEM. IS THAT REALLY SUFFICIENT CAUSE FOR ISOLATING THE WHOLE PROCESS IN A SPECIAL GROUP? MUCH GREATER JUSTIFICATION EXISTS FOR THE THESIS THAT ANY NERVE POINT, NOT EXCLUDING PERIPHERAL NERVE STRUCTURES, CAN BECOME THE ORIGINATOR OF NEURO-DYSTROPHIC PROCESSES SERVING AS THE TEMPORARY OR PERMANENT NERVE CENTRE OF THESE PROCESSES.

"The vegetative nervous system is only a special case of those forms of physiological relationships which were previously known under the name of neuro-trophism. No special characteristics were included in this new conception. The clinic approached the question synthetically, while theory approached it analytically. BUT IT IS CUSTOMARY TO REPOSE MORE TRUST IN THE DATA OF LABORATORY EXPERIMENTS IN SCIENCE THAN IN THE OBSERVATIONS MADE IN THE CLINIC. AN IDEA OF THE CLINIC IS RECOGNIZED AS SCIENTIFIC WHEN IT IS SUPPORTED BY THE LABORATORY, AND THE LATTER, RATHER NAIVELY, RECKONS THE AGE OF THE IDEA PRECISELY FROM THIS POINT.

"The circumstance that the physiologist or histologist of the present day is not able to isolate a 'trophic nerve cell' has ceased to be an objection and has lost its force as a refutation. The form of the decision of this question we can calmly leave to the future. NUMEROUS CLINICAL OBSERVATIONS AND ABSOLUTELY DIRECT EXPERIMENTS HAVE SHOWN THAT THE NERVE FORM OR REGULATING PHYSICO-CHEMICAL PHENOMENA IN THE COMPLEX ORGANISM DOES EXIST. THE PROCESS HAS BOTH A GENERAL SIGNIFICANCE FOR THE WHOLE ORGANISM AND A SPECIAL ONE FOR EACH SEPARATE ORGAN.

"It would seem that this is all that is required.

"Another reason why research activity in the direction mentioned can be carried on independently of the recognition of special trophic nerve elements lies in the fact that THERE ARE NO NON-TROPHIC NERVE ELEMENTS IN THE ORGANISM, i.e., ELEMENTS THAT HAVE NEITHER DIRECT NOR INDIRECT CONNECTION WITH METABOLISM. In actual work the question that has to be put is not that of the trophic nervous system as such, but of the nervous component of processes which are very diverse in external form.

"IT WAS POINTED OUT ABOVE THAT WHENEVER OUR PROCEDURE AFFECTED THE NERVOUS ASPECT OF ANY PHENOMENON, THIS RESULTED IN CHANGES NOT ONLY IN THE NERVE PORTION CONCERNED BUT IN THE WHOLE INTRICATE COMPLEX.

"GRADUALLY TWO BASIC FACTS WERE ESTABLISHED. THE FIRST IS THAT MANY PATHOLOGICAL PROCESSES, THE CAUSE OF WHICH

HAD BEEN REGARDED AS ABSOLUTELY FOREIGN TO NERVOUS INFLUENCES, HAVE BEEN FOUND TO BE IN REALITY ENTIRELY DEPENDENT ON THE LATTER FOR THEIR ORIGIN.

"The second thesis concerns all the processes not belonging to the first group. To whatever chapter of pathology they belong, however complicated their composition and however variable their course, THE NERVOUS COMPONENT REMAINS FROM BEGINNING TO END THE FACTOR THAT DETERMINES THEIR GENERAL STATE. IT, AS IT WERE, UNITES THE SEPARATE ELEMENTS INTO A WHOLE, IT FORMS THE CEMENT, ANY CHANGE IN WHICH INEVITABLY ALTERS THE APPEARANCE OF THE PROCESS IN ALL ITS OTHER PARTS. IT IS IMPOSSIBLE TO SEPARATE IT FROM THE REMAINING ELEMENTS OF THE COMPLEX PROCESS. APART FROM MEMORY, WE DO NOT KNOW OF A SINGLE NERVOUS FUNCTION WHICH CAN BE REALIZED BY ITSELF, WITHOUT CHANGE IN THE STATE OF SOME OTHER ORGAN. IT IS CLEAR FROM THIS THAT THE EXTERNAL MANIFESTATIONS OF NERVOUS PROCESSES IN A COMPLEX ORGANISM MUST BE JUST AS DIVERSE AS IN GENERAL ALL THE MANIFESTATIONS OF LIFE. UNDER THE CONDITIONS MENTIONED, AN APPRAISAL OF THE ROLE OF THE NERVOUS COMPONENT OF PATHOLOGICAL PROCESSES PRESENTS INNUMERABLE DIFFICULTIES.

"This is the reason why this book cannot have a conclusion."

Pages 343-344.

"Without mentioning details, I shall formulate some of the propositions which years of research have convinced us are trustworthy.

"1. The forms of nervous activity known to us — motor, receptor and secretory — are manifested by changes in the state of various parts of the organism and are inevitably connected with changes in matter. HENCE, NERVOUS INFLUENCES IN THE COURSE OF BIO-PHYSICAL AND BIO-CHEMICAL PROCESSES IN THE TISSUES (neuro-trophic influences) are not a form of physiological relation new in principle; they are not a characteristic, and still less a unique, nervous function.

"2. DIRECT IRRITATION OF DEFINITE NERVE STRUCTURES MAY GIVE RISE TO BIO-CHEMICAL CHANGES IN THE BLOOD AND ORGANS WITHOUT THESE BEING ACCOMPANIED AT THE SAME TIME BY ANY OTHER EASILY NOTICEABLE REACTION. This gives rise to the conception of the independence of the nervous functions of metabolism. In point of fact, this is merely a series of preparatory changes indispensable for the subsequent development of a chain of reactions. Whenever the function under consideration is actually manifested independently, out of contact with other physiological processes, this means that it has already become pathological.

"3. In relation to processes of a neuro-trophic character, the theory of localization has only a relative application. The grouping of functionally united morphological elements does undoubtedly take place; this, however, determines not the whole process but only its separate links. Taken by

themselves, these links have no independent character and do not constitute a whole. Moreover, they can be brought into action by the most diverse energy sources, which in this way are temporarily included in the chain of nervous centres of the given process. CONSEQUENTLY, THE TROPHIC NERVOUS FUNCTION AS SUCH HAS NO EXACT LOCALIZATION. THE MORPHOLOGICAL GROUPS OF ELEMENTS PERFORMING THIS FUNCTION ARE SCATTERED THROUGHOUT THE WHOLE COMPLEX NERVOUS SYSTEM, CONSISTING OF CENTRAL, PERIPHERAL AND SYMPATHETIC PARTS.

"4. EACH OF THESE STRUCTURES IS LINKED BY SIMPLE AND COMPLEX CONNECTIONS, NOT ONLY WITH OTHER NERVOUS MECHANISMS, BUT ALSO WITH TISSUE ELEMENTS AT THE PERIPHERY, AND PERFORMS ITS FUNCTION IN ASSOCIATION WITH THEM. HENCE, THERE CANNOT BE ANY FORM OF INTERFERENCE IN NEURO-TROPHIC PROCESSES WHICH DOES NOT AFFECT OTHER FUNCTIONS AT THE SAME TIME.

"5. THE ALTERATION OF THE NERVOUS PART OF ANY PROCESS AT A GIVEN PLACE AND TIME IS THE SUM-TOTAL OF A SERIES OF OTHER PROCESSES, ONE OF THE LINKS OF THE CONTINUOUSLY CHANGING COMBINATIONS WHICH ARE BUILT UP WITHIN THE NERVOUS SYSTEM. A special combination exists insofar as it is connected with the general combination and is derived from the latter, which itself is the mobile sum of all the special parts. IT IS OBVIOUS FROM THIS THAT THE IRRITATION OF ANY POINT OF THE COMPLEX NETWORK OF THE NERVOUS SYSTEM CAN EVOKE CHANGES NOT ONLY IN THE ADJACENT PARTS BUT ALSO IN REMOTE REGIONS OF THE ORGANISM.

"6. These changes consist in transformations of the internal nerve conditions, gradually developing and later becoming extinguished. Their influence upon various forms of nervous activity is by no means uniform. In the general physiological complex, there exist nerve combinations of varying constancy, depending on the constancy of function and the functioning periods of the separate systems. SINCE A PATHOLOGICAL NERVE COMBINATION IS ALWAYS A NEW COMBINATION, INTERFERENCE IN ITS COURSE CAN BE ACHIEVED MORE EASILY THAN IN CASES WHERE WE ARE CONFRONTED BY A STABLE PHYSIOLOGICAL PROCESS.

"7. The stability of combinations of a pathological type is also very diverse and DEPENDS ON A NUMBER OF FACTORS. They owe their origin to the action of some irritating agent. But the strength of the irritating agent is the degree of irritation. THE DISTURBANCES OCCASIONED CAN BE TRANSIENT OR PERMANENT."

Pages 344-345.

"11. If the irritation EXCEEDS A CERTAIN LIMITING STRENGTH, THEN, NO MATTER HOW THE PROCESS BEGAN AND WHATEVER IT WAS THAT ORIGINALLY EVOKED IT, IT BECOMES GENERALIZED THROUGHOUT THE NERVOUS SYSTEM AND USUALLY ACQUIRES A STANDARD COURSE OF DEVELOPMENT. It then becomes almost

impossible to arrest it, and it culminates in general dystrophy and death.

"12. Hence, we obtain the rule that only WEAK degrees of irritation can have a useful significance; STRONG ONES INEVITABLY DO DAMAGE. In appraising various forms of operation, it is necessary to take this fact into account in the first place.

"The propositions here laid down do not claim to be a final solution of the question of the nature of the reactions under consideration. However, they are sufficient to throw light on the direction taken by our experimental work in the clinic.

"When speaking above of THE YOUTHFULNESS OF CONTEMPORARY MEDICINE, I had in view, of course, only the science of medicine. Medicine in general is one of the most ancient systems. IT MUST BE FRANKLY ADMITTED THAT CONTEMPORARY MEDICINE DOES NOT OWE ITS SUCCESSES IN THE SPHERE OF TREATMENT TO SCIENCE ALONE. SCORES OF ITS METHODS AND PROCEDURES REST ON EMPIRICISM AND EVEN ON CHANCE. Only in the sphere of infection, of mechanical therapy and of hygiene are its achievements connected with a really scientific analysis of the phenomena. FOR THE REST, ANARCHY PREVAILS, HERE AND THERE CORRECTED BY SEPARATE FACTS AND PARTIAL COMPARISONS. WE HAVE AN INFINITE NUMBER OF MEDICAL THEORIES, BUT WE HAVE NOT HAD, AND DO NOT HAVE, A THEORY OF MEDICINE, A THEORY CAPABLE OF EMBRACING ALL THE DATA AND DIRECTING THEM INTO CHANNELS WHERE THEY CAN BE MOST ACTIVELY UTILIZED.

"However, medicine cannot wait. In its theories the aims of the future must be combined with the tastes of the present day. THAT IS WHY IT IS, PERHAPS, ONE OF THE FIRST OF THE BIOLOGICAL SCIENCES TO START LOOKING FOR A WAY OUT OF THE POSITION IN WHICH BIOLOGY FINDS ITSELF AS A WHOLE.

"However elementary a biological phenomenon may seem outwardly, it always presents a certain complexity, it always consists of a number of simpler elements. The difficulty of analysis and subsequent synthesis lies precisely in the fact that all the parts are connected here in a mobile fashion, i.e., they are continually altering with time. IN THESE CIRCUMSTANCES, THE ENDEAVOR TO GET A KNOWLEDGE OF THE WHOLE BODY BY DETERMINING ITS CONSTITUENT PARTS PROVES TO BE HOPELESS, FOR AS SOON AS ONE ELEMENT IS EXCLUDED THE REMAINDER IMMEDIATELY ENTER AMONG THEMSELVES INTO A QUALITATIVELY NEW FORM OF RELATIONSHIP. The same holds good also of the reverse, i.e., the attempt to reproduce the original combination.

"THE POSITION OF MEDICINE, AIMING AT ACTIVELY INTERFERING IN THE COURSE OF PATHOLOGICAL PROCESSES AND DIRECTING THEM IN A CHANNEL DETERMINED ON BEFORE-HAND, SEEMS TO HAVE BEEN RENDERED EXTREMELY DIFFICULT. NEVERTHELESS, WE KNOW THAT MEDICINE DOES TREAT, AND FREQUENTLY EVEN TREATS VERY WELL, DISEASES ABOUT WHICH IT NOT ONLY

DOES NOT KNOW EVERYTHING BUT HARDLY KNOWS ANYTHING AT ALL. SUCH, FOR INSTANCE, ARE RHEUMATISM, MANY SKIN DISEASES, NERVOUS DISEASES, SO-CALLED 'CONSTITUTIONAL' ILLNESSES, ETC.

"What is the point here? It is clear an exact knowledge of all details is not indispensable for useful interference in the course of a pathological process. IT SUFFICES SOMETIMES TO COMPREHEND ACCURATELY THE BASIC CONDITION, THE 'LEADING LINK', AND BY GRASPING IT TO MANIPULATE THE WHOLE CHAIN. THIS OPENS UP THE PROSPECT OF A SCIENTIFIC APPROACH TO MEDICAL PRACTICE; IT IS PRECISELY THIS THAT GIVES RISE TO THE NEED, EXPERIENCED BY ALL, FOR THE CREATION OF A UNITARY THEORY OF MEDICINE.

"From the time of mystical schools and of 'Naturphilosophie', only one attempt has been made to formulate such a theory, viz., Virchow's cellular-pathology. But here, also, the only general idea was the independence of cell reactions, which in practice led, not to the unification, but to the dispersion of medical views. CONSEQUENTLY, ALSO, THE SEARCHES FOR THE LEADING LINK, ON WHICH MEDICINE WOULD LIKE TO CONCENTRATE ITS ATTENTION, CAN BY NO MEANS ALWAYS BE REGARDED AS SEARCHES IN THE PROPER MEANING OF THE WORD. FREQUENTLY, THEY WERE MERELY WINDFALLS. The big pharmaceutical works in Europe and America organize their activity approximately in this way. Their chemists and technicians sometimes have to prepare hundreds of unnecessary preparations so that medicine might select one of them. THE NECESSARY LINK IS, THEREFORE, SEARCHED FOR AT RANDOM, AND ONLY LATER THE WORK BEGINS OF EXPLAINING THE MECHANISM OF THE ACTION OF THIS LINK IN EACH SEPARATE CASE.

"IT IS OBVIOUS THAT MEDICINE WILL NOT QUICKLY ATTAIN ITS AIM BY PROCEEDING THUS FROM SPECIAL CASE TO SPECIAL CASE. AS LONG AS THE NATURE OF ALL PATHOLOGICAL PROCESSES WITHOUT EXCEPTION IS NOT UNITED BY SOME GENERAL CHARACTERISTIC, AS LONG AS THE METHOD OF DIVIDING DISEASES ACCORDING TO THEIR DIFFERENCES IS NOT SUPPLEMENTED BY THE METHOD OF UNITING THEM ACCORDING TO THEIR RESEMBLANCES, WE SHALL NOT HAVE A THEORY OF MEDICINE, i.e., WE SHALL HAVE NO HOPE OF PUTTING AN END ONCE FOR ALL TO THE ANARCHIC FORM OF THE DEVELOPMENT OF MEDICINE AS A SCIENCE, AND OF PASSING TO PLANNED AND SYSTEMATIC WORK.

"THE NEW DIRECTION IN PATHOLOGY, THAT CAN ARISE FROM A STUDY OF THE ROLE OF THE NERVOUS COMPONENT OF PATHOLOGICAL PROCESSES, ENDEAVORS TO FULFILL BOTH TASKS NECESSARY FOR THE CREATION OF A THEORY OF MEDICINE. IT GIVES A CONCRETE CONCEPTION OF THE LEADING LINK, AND IT ESTABLISHES THE PRINCIPLE OF THE INTEGRATION OF ALL THE INNUMERABLE SEPARATE PATHOLOGICAL FORMS INTO A SINGLE SYSTEM.

"IN ORDER TO REALIZE THE IDEA OF THE 'LEADING LINK' IN MEDICAL PRACTICE, IT IS NECESSARY FIRST OF ALL TO EMANCIPATE ONESELF FROM CERTAIN CUSTOMARY FORMS OF APPROACH TO THE CONCEPT OF THERAPEUTICAL INTERFERENCE. THE LATTER, AS EVERYONE KNOWS, PURSUES THE AIM OF ABOLISHING PATHOLOGICAL PHENOMENA IN THE ORGANISM. IN THIS WAY, A CONCEPTION OF DISEASE IS INEVITABLY CREATED AS OF AN IRRUPTION OF SOMETHING FOREIGN WHICH MUST, AND ACTUALLY CAN, BE EXPELLED. This kind of conception is produced by the 'causal method' of estimating pathological states, regarding the process as the collision, and subsequently the prolonged interaction, of two factors.

"We have seen that this view will not bear criticism. The act itself of collision between the organism and the foreign agent in the majority of cases escapes observation and appraisal. Consequently, in practice, we only very rarely have to deal with a period of interaction between two factors, since they very rapidly become fused into one. We obtain, not a disease in the organism, but a new organism, distinguished from the original one by a number of constant or accidental features. IF DIPHTHERIA, NEOPLASMS, NEPHRITIS, DIABETES, ETC., WERE TO PRESERVE FROM BEGINNING TO END AN ACTIVE CONNECTION WITH THE INDIVIDUAL CAUSE THAT PRODUCED THEM, THERE COULD, OF COURSE, BE NO TALK OF ANY LEADING LINK IN MEDICINE.

"The inclusion of a certain number of additional factors in the existing normal system transforms the latter and adapts it to new conditions of activity. But from that moment on, the additional factor not only determines the general state of the system, but itself depends on the system.

"Actions exerted secondarily on this new system will inevitably have their reflection also on the factors which originally changed it. As a result of interference, conditions may be created in which the pathologically constructed combination is not removed but disintegrated. This takes place precisely because the disease is not something foreign to the organism but becomes part of it, combined with all the rest into a single whole.

"With such a formulation of the problem, the idea of the 'leading link' becomes converted into a concrete task, consisting in finding, studying and utilizing a number of means capable of creating temporary regroupings of the relations in a complex organism. Weighing up the entire mass of data described in this book, it is clear that we must seek for such a form of interference among the actions influencing the nervous system.

"Of the means used by the clinic for putting an end to pathological processes of a neuro-trophic character, the first, in point of time, were operations aiming at removal of the damaged nerve elements OR INTERRUPTION OF THE PATHS OF 'PATHOLOGICAL REFLEXES.' At the outset of our work we also judged the task in this way; however, we were compelled subsequently to change our attitude to the subject.

"Closer analysis showed the untruth of a proposition which even now enjoys general recognition. IT IS WIDELY CONSIDERED THAT THE

METHOD OF IRRITATION AND THE REVERSE METHOD OF EXCLUSION ARE THE BASIS FOR THE STUDY OF ALL DEPARTMENTS OF NERVOUS PHYSIOLOGY. The former method takes account of newly arising phenomena, while the latter makes it possible to note the defects in, or even the absence of, entire functions. I shall not take it upon myself to judge how far this view is actually justified in relation to other departments of physiology, BUT IT HAS PROVED INAPPLICABLE IN THE SPHERE OF THE STUDY OF THE NERVOUS COMPONENT OF PATHOLOGICAL PROCESSES. In point of fact, we cannot exclude anything here, and whatever the external appearance of our procedure, it can never be a subtraction, for it always adds something new to what existed before. INDEED, WE EVEN FOUND THAT BOTH IRRITATION AND EXCLUSION OF ONE AND THE SAME NERVE STRUCTURE WAS OFTEN EXPRESSED BY ABSOLUTELY IDENTICAL CONSEQUENCES AT THE PERIPHERY. IT BECAME CLEAR THAT NEITHER MEANS ACTED BY ITSELF, BUT ONLY COMMENCED SOME THIRD PROCESS FOR WHICH EITHER SERVED MERELY AS THE HISTORICAL STARTING POINT. Severance and excision of nerve structures can, as is well known, produce a therapeutic effect, i.e., temporarily abolish dystrophic phenomena in the tissues. But the mechanism of action here is different, and is not what it is officially accounted to be."

Pages 346-350.

"And we witness that the most authoritative representatives of this comparatively new branch of surgery (Leriche and others) in summarizing their 'achievements' are already sounding the alarm AND OPENLY CALLING FOR RENUNCIATION OF ALL OPERATIONS WHICH ARE ASSOCIATED WITH MORE OR LESS CONSIDERABLE NERVE TRAUMA.

"In our experimental work, we renounced this long ago and clearly explained the cause of the contradictions created. IT BECAME EVIDENT THAT THE USEFULNESS OF OPERATING ON THE NERVOUS SYSTEM IS OFTEN DUE TO THE VERY ACT OF INTERFERENCE ITSELF, AND NOT TO ITS FORM, WHILE THE HARM, ON THE OTHER HAND, DEPENDS ON ITS FORM AND IS ASSOCIATED WITH EXCESSIVE TRAUMA."

Page 350.

"This explains many strange facts observed in the nerve clinic. Let us take, for instance, traumatic epilepsy with a bone defect in the cranium. The patient is operated on, the scars are removed, and the defect is covered by a piece transplanted from the rib. The attacks cease. After some time they are renewed again, and often with even greater violence. A second operation is performed, the transplanted pieces of rib which have already become grafted, are cut out. The attacks disappear, again only for a certain time. A new transplantation is undertaken, and again the disease is checked. I do not know how long it is possible to go on repeating this, but such experiments have actually been made, and they are well known.

"All these forms of operation aimed at removing the source of irritation and protecting the brain, but the favourable result was achieved both when the brain was given protection and when it was deprived of this protection, and in both cases the effect was a temporary one."

Page 354.

"The fact that dystrophic disturbances pass outside the limits of the segment primarily affected and become gradually generalized, and that the pathological changes frequently exhibit symmetry, turned our attention to this disease, the nature of which is still problematical. The disease has certain features of an infection, but it is not infectious, although it can occur epidemically. It can be included more readily than other disease in the concept of 'catarrhal' disease. The significance of this point cannot be assessed with sufficient accuracy. USUALLY ITS SIGNIFICANCE IS DENOTED BY THE IRRESPONSIBLE TERM 'pre-disposition.' We have seen that this concept conceals phenomena which are very close to those of a neuro-dystrophic type."

Page 355.

"The cause of inflammation is considered to be the external damage; the inflammation itself is the reaction to the latter. When the external agent is found all the remainder is regarded as explained. If the external agent cannot be found, we continue our search, or we wait, and in that case we are even ready to postulate the existence of an invisible virus so as not to infringe the principle.

"It is not surprising that in this connection the theory of rheumatism has had to pass through many diverse stages, since, in spite of exhaustive search, the microbe has not been found. The proposals put forward at different times by certain investigators (Rasenow, Menzer, Small, Schottmuller, Gratt, Fahr, etc.) did not satisfy others. The theory of allergy was next brought to the assistance and toxin appeared on the scene in place of the microbe.

"The nature of this toxin also remained unknown since it also was a mere supposition. Nevertheless, the 'allergic theory' of rheumatism, elaborated chiefly by Weintraud, Klinge, Strazhesko, etc., has now become almost more popular than any other.

"We have never had any doubt of the fact that processes of a nervous nature underlie the large group of phenomena united by the term allergy. Confirmation of this can be found in almost all the material described previously. Here is another observation of this character."

Page 356.

"These cases must be interpreted as being due to the fact that, in a single individual in the region of a particular nerve segment but on different sides of it, it is possible to observe simultaneously non-receptivity and enhanced receptivity to scarlatina toxin. Both these processes develop as a result of a single action of the antigen, applied at only one point of the cutaneous surface. I DO NOT THINK THAT THE NERVOUS CHARACTER OF THESE TWO PROCESSES REQUIRES ANY FURTHER PROOF."

Pages 356-357.

"WE HAVE SEEN THAT NERVOUS DYSTROPHY CAN BE PRODUCED ALIKE BY PHYSICAL, CHEMICAL OR BIOLOGICAL IRRITATION APPLIED TO ONE POINT OR ANOTHER OF THE NERVOUS SYSTEM. THE PRESENCE OF AN EXTERNAL AGENT IN THE INFLAMMATORY FOCI IS NOT AT ALL INDISPENSABLE AND, MOREOVER, PROVES NOTHING, SINCE IT CAN BE ACCIDENTAL."

Page 357.

"DEVELOPING WITHIN THE NERVOUS SYSTEM, THE PROCESS PROCEEDS IN MORE THAN ONE DIRECTION AND EMBRACES VARIOUS NERVE PARTS, INCLUDING THOSE CONCERNED WITH TEMPERATURE REGULATION."

Page 361.

"Our experiment has a different significance. It enables us to see deeper into the pathogenesis of malaria and reveals aspects of the process which had remained concealed. BY A MECHANICAL, UNSPECIFIC MEANS, APPLIED TO THE NERVOUS SYSTEM, WE SUCCEEDED IN TEMPORARILY CHANGING THE NATURE OF THE ORGANISM. ON THE BASIS OF WHAT HAS BEEN SHOWN TO BE A VERY INCONSIDERABLE CHANGE, THE PATHOLOGICAL PROCESS NEVERTHELESS COULD NOT MAINTAIN ITSELF. CONSEQUENTLY, ITS TEMPORARY OR PERMANENT ELIMINATION WAS ACHIEVED AS THE RESULT OF ANOTHER PROCESS, THE SOURCE OF WHICH LAY IN THE IRRITATION OF THE NERVOUS SYSTEM.

"This is the fundamental significance of the observations described.

"WE ARE NOT CASTING ANY DOUBT, OF COURSE, ON THE INFECTIOUS NATURE OF MALARIA. BUT WE DO VERY SERIOUSLY DOUBT THAT EACH OF ITS SYMPTOMS ACTUALLY OWES ITS ORIGIN TO DIRECT IRRITATION BY THE ANTIGEN. NEITHER THE TEMPERATURE NOR THE SPLEEN NOR THE OTHER ELEMENTS OF THE DISEASE CAN DEPEND ON THE MICROBE OR ITS TOXINS."

Page 371.

"WE ALSO OBTAIN DATA FOR APPROACHING THE QUESTION OF THE SECRET OF THE ACTION OF QUININE IN MALARIA, OF SALVARSAN IN SYPHILIS AND SALICYLIC PREPARATIONS IN RHEUMATISM. THE SUBSTANCES MENTIONED HAVE THE PROPERTIES OF IRRITATING AGENTS PRODUCING A DEFINITE FORM OF NERVOUS IRRITATION. But the exhibition of these properties demands the existence of certain constant conditions. WHEN THESE CONDITIONS ARE ABOLISHED, THE SUBSTANCES LOSE THE CAPACITY TO PRODUCE THE REQUIRED REACTION. THE IRRITATING AGENT ITSELF, OF COURSE, CANNOT ACQUIRE OR LOSE ANYTHING. IT IS A SIMPLE, CONSTANT PREPARATION. THE CHANGE OCCURS IN THE ORGANISM, IN THE SUBSTRATUM WHICH UNDERGOES IRRITATION. It acquires or loses the property of responding to irritation. By re-establishing the necessary conditions through an additional counter-irritation, we restore these properties that it has lost.

"Ehrlich's idea of discovering or synthesizing chemical substances with a specific action on particular pathogenic microbes has led to the discovery of only very few such means, and, even in their action, specific tropism obviously plays no part. THERAPIA STERILISANS MAGNA HAS NOT JUSTIFIED ITSELF IN PRACTICE PRECISELY BECAUSE THE UNDERLYING PRINCIPLE IS INCORRECT.

"TO BRING THIS CHAPTER TO A CONCLUSION, IT REMAINS TO SAY A FEW WORDS ABOUT FEVER. I HAVE ALREADY GIVEN

GROUND'S FOR DOUBTING THAT TEMPERATURE IS THE IMMEDIATE REACTION OF DEFINITE MECHANISMS TO EXTERNAL DAMAGE.

"THE PECULIAR PROCESS WITH WHICH WE ARE CONCERNED DEVELOPS WITHIN THE NERVOUS SYSTEM ALONG DIFFERENT DIRECTIONS, BUT NOT ANARCHICALLY." Page 372.

"Contemporary medicine is powerless in treating this disease. Neither salvarsan nor any of the arsenic preparations allied to it, which have such decisive action in European recurrent typhus, produce the slightest effect in this case." Page 373.

"IF A TEMPORARY TRANSFORMATION ALONE OF THE NERVE INTERRELATIONS SUFFICES FOR ABOLISHING ALL THE SYMPTOMS OF AN INFECTIOUS DISEASE, WHERE MUST ONE LOOK FOR THE SOURCE OF THE DEVELOPMENT OF THESE SYMPTOMS?

"The onset of the attacks, the rise of temperature, the enlargement of the spleen, etc., DO NOT OCCUR BECAUSE THE FOREIGN AGENT PENETRATES THE ORGANISM FROM OUTSIDE OR EMERGES FROM ITS REFUGE IN THE ORGANISM ITSELF AND SPREADS IN IT. EXACTLY THE REVERSE IS THE CASE. THE MICROBE MAKES ITS APPEARANCE BECAUSE THE ORGANISM MAKES THIS POSSIBLE. A SPECIFIC EXCITING AGENT PRODUCES AN EQUALLY DEFINITE PROCESS. WITH THIS ITS ROLE COMES TO AN END. THE REACTING SUBSTRATUM IS RESPONSIBLE FOR EVERYTHING THAT FOLLOWS.

"Apart from what has been described above, WE DO NOT AT PRESENT HAVE ANY THERAPEUTIC MEANS AGAINST PERSIAN TYPHUS. BUT IF ANY SUCH MEANS WERE TO BE FOUND IN THE NEAR FUTURE, OF WHATEVER NATURE, IT WOULD BE BOUND TO AGREE WITH OUR SYSTEM OF CONCEPTIONS AS FAR AS THE MECHANISM OF ITS ACTION IS CONCERNED." Pages 375-376.

"HIS AIM WAS TO CAUSE AN INTERRUPTION OF THE PATHS OF 'PATHOLOGICAL REFLEXES', WITH LESS TRAUMA THAN IN THE USUAL FORMS OF OPERATION. Moreover, on the basis of observations on inflammatory processes, he regarded novocaine as a means exercising immediate curative action of the affected nerve elements.

"At that time we estimated the curative effect EVEN OF DIRECT INTERRUPTION OF THE NERVE PATHS, OR OF EXTIRPATION OF THE CORRESPONDING NERVE STRUCTURES, not only as a consequence of disconnection (i.e., putting a stop to pathological irritation), but also as a factor promoting transformation of nerve interrelations, i.e., AS A FACTOR OF ADDITIONAL IRRITATION. It is easily comprehensible that this point of view acquired even greater significance in relation to local anaesthesia. A. V. Vishnevsky FOUND THAT A TEMPORARY 'BLOCK' IN THE PATHS OF THE 'PATHOLOGICAL REFLEX', ALTHOUGH IT LASTED ONLY A FEW DOZEN MINUTES, NEVERTHELESS GAVE A RESULT THAT WAS NOT ONLY NOT WORSE, BUT FREQUENTLY EVEN BETTER THAN THE USUAL BLOODY OPERATIVE MEANS." Pages 377-78.

"6. It follows from this that all the forms of operation undertaken by us served merely as impulses for the commencement of a complex nervous process in which ceratitis was one of the links. That the process actually arises in this way is evident from the exceptional diversity of the incubational period; in some cases we obtained an effect within a few hours after the operation, in other cases only after several months." Page 388.

"WHAT IS PROPERLY TO BE UNDERSTOOD BY THIS CONCEPTION REMAINS ALTOGETHER UNKNOWN. IN SOME CASES IT IS OFTEN DIFFICULT EVEN TO ANSWER THE QUESTION OF WHETHER WE ARE CONFRONTED BY MILIARY TUBERCULOSIS, POLYNEURITIS, SEPTIC ENDOCARDITIS, RHEUMATISM, OR SOMETHING ELSE. MORE-OVER, I HAVE ALREADY POINTED OUT THAT THE PRESENCE OF A MICROBE IN THE BLOOD CAN ONLY BE AN INDICATOR AND NOT THE CAUSE OF A PATHOLOGICAL STATE. THIS MAKES IT COMPREHENSIBLE THAT WE SHOULD ENDEAVOR TO STUDY SEPTIC PROCESSES INDEPENDENTLY OF THEIR FORMAL CAUSE." Page 391.

"SKIN DISEASES FORM ONE OF THE MOST OBSCURE FIELDS OF PATHOLOGY. THE AETIOLOGY AND PATHOGENESIS OF MOST OF THEM REMAIN UNKNOWN. AT THE SAME TIME, THE CONNECTION BETWEEN SKIN AFFECTIONS AND DISEASES OF THE NERVOUS SYSTEM OFTEN STANDS OUT SO CLEARLY, THAT LONG AGO IT EVOKED THE EFFORTS OF MANY INVESTIGATORS TO INTRODUCE GREATER PRECISION IN THIS QUESTION. I shall not attempt to give a historical review of these efforts.

"IN OUR CLINICAL EXPERIMENTS, WE STUDIED SKIN AFFECTIONS FROM THE POINT OF VIEW OF THE NERVOUS COMPONENT OF THE PROCESSES." Page 395.

"IN CONCLUSION, I CONSIDER IT NECESSARY TO POINT OUT THE NEED FOR A DIFFERENT ATTITUDE TO THE METHOD OF NOVOCAINE BLOCKADE FROM THAT WHICH HAS BECOME USUAL IN MEDICAL PRACTICE.

"IT IS NOT A MEANS TO ABOLISH THE DISEASE. If novocaine blockade does not produce an effect at once, a second blockade often proves to be useful. On the other hand, if the first operation produces an effect, a second is frequently harmful. If we were actually dealing with a means acting on the particular disease, the reverse should be the case. THE CURE IS EFFECTED, NOT BY OUR OPERATION ITSELF, BUT BY WHAT TAKES PLACE IN THE ORGANISM AFTER IT. When the effect is immediately positive, a repetition of the operation alters the favourable situation into another one, THE CHARACTER OF WHICH IS UNKNOWN IN ADVANCE. ON THE CONTRARY, IF THE FIRST BLOCKADE DOES NOT CREATE THE REQUIRED FORM OF NERVE RELATIONS, WE ARE JUSTIFIED, OF COURSE, IN ALTERING THESE RELATIONS FURTHER."

Page 397.

"The theorist still has his task to perform. MEDICINE AS YET HAS NO THEORY. The genuinely scientific study of medical theory BEGAN ONLY

RECENTLY, from the time when experiment became a basic method of physiological work. Hence, the development of scientific medical thought did not proceed independently. It depended on the development of biology in general. Medicine constructed its views by adapting itself to the results obtained in neighbouring fields. The endeavour to unite all streams into a single, general biological channel is, of course, entirely natural and absolutely correct as an ideal. However, before this synthesis can be achieved, it is necessary not only to collect material but to make an appropriate characterization of its special features, to carry the analysis of the subject to the utmost perfection. Passive subordination to a foreign leadership can easily be ruinous, for it is bound up with obligatory acceptance of verbal analogies, with grouping together, of qualitatively distinct phenomena according to an accidental characteristic. As a result, instead of synthesis we lose the possibility of manoeuvring and end by appealing for the help of specialists in other branches of science.

"This has already happened more than once with pathology. Who has not considered himself master of the house here? What PETTY facts have served as the impulse for creating the principles on which this science is built! Each of these facts was expected to create a synthetic pathology, each of the claimants has striven to give an exhaustive and final definition of the concept of disease.

"NOT ONE OF THEM HAS SUCCEEDED IN DOING SO; UP TO NOW AS SOON AS SUCH A DEFINITION IS BROUGHT FORWARD TEDIOUS DISCUSSION ARISES IMMEDIATELY, WITHOUT ANY HOPE OF ARRIVING AT EVEN TEMPORARY AGREEMENT.

"We exhaust ourselves in new efforts for finally discovering the required formula, WHILE IN POINT OF FACT THE QUESTION THAT SHOULD BE DECIDED IS WHY THIS FORMULA IS UNOBTAINABLE. THE CAUSE IS VERY SIMPLE: DISEASE WAS NEVER LOOKED UPON AS AN INDEPENDENT QUALITY, AS A SPECIAL FORM OF BIOLOGICAL PROCESSES; THE STARTING POINT HAS ALWAYS BEEN FORMED BY CONCEPTIONS OF A CONTRARY NATURE." Pages 398-99.

"THERE IS NO DOUBT, OF COURSE, THAT THE BASIS FOR THE DEVELOPMENT OF NEURODYSTROPHIC PROCESSES IN THE ORGANISM LIES IN THE PECULIARITIES OF STRUCTURE AND FUNCTION OF THE NERVOUS SYSTEM, i.e., IN ITS PHYSIOLOGICAL PROPERTIES." Page 399.

"WE HAVE SEEN THAT WHENEVER OUR PROCEDURES ENABLED US TO INFLUENCE THE NERVOUS COMPONENT OF ANY COMPLEX PATHOLOGICAL PROCESS, THIS RESULTED IN CHANGES NOT ONLY OF THE NERVOUS COMPONENT ITSELF BUT OF THE WHOLE COMPLEX OF THE PHENOMENA MANIFESTED. FURTHER RESEARCH OUGHT TO BE DIRECTED TOWARDS AN ALL-EMBRACING STUDY OF THE DETAILS OF STANDARD AND SPECIAL FORMS OF NEURODYSTROPHIC PROCESSES AND SHOULD AIM AT DISCOVERING NEW MEANS FOR ACTIVELY INTERFERING IN THEIR COURSE. The ancient

methods of treatment in the form of such devices as cauterization by hot iron, setons, fontanelles, cupping glasses, poultices, smearing with irritating substances, etc., equally with more recent methods—subcutaneous injections of milk and other protein substances, radium, X-rays, diathermy and all that is included under the term 'Reiztherapie,' and finally 'pumping' and temporary disconnection of parts of the nervous system by means of anaesthesia—all these find the explanation of their action in those characteristic changes which the nervous system undergoes on encountering processes of irritation. There is every reason to believe that drugs such as sodium salicylate, quinine, arsenic, mercury, and perhaps many others as well, OWE THEIR ACTION TO THE SAME MECHANISM. This provides a foundation for understanding the directions along which clinic research work has to be carried out. The differences in the forms of the neuro-dystrophic process and the peculiarities of individual nervous systems call in each case for the search for new forms of interference. This shows that medicine can never have a panacea. It also shows that research is indispensable."

Page 400.

"BUT WHATEVER TURN THE PROCESS MAY TAKE, WHETHER TOWARDS AGGRAVATION OR, ON THE CONTRARY, TOWARDS EXTINCTION, IT REMAINS A FACT THAT THE BASIC CONSTITUENT FEATURE OF THE PROCESS, ITS 'LEADING LINK', IS THE NERVOUS COMPONENT.

"The second condition for a theory of medicine is, as was mentioned above, the union of all the varied data of pathology around a common centre. I shall not repeat here either the reasons making this task a very urgent one at the present moment or the data which testify to the fact that THE DESIRED CENTRE HAS BEEN FOUND BY US IN THE NERVOUS COMPONENT OF PATHOLOGICAL PROCESSES.

"THE INVESTIGATION OF THIS ASPECT IS NOT ONLY INTERESTING ON ITS OWN ACCOUNT BUT ALSO MAKES IT POSSIBLE TO GIVE A SUITABLE ARRANGEMENT TO ALL THE OTHER FACTS, TO FIND THE PROPER PLACE FOR EACH CONSTITUENT AND TO DETERMINE THE ORDER OF FUNCTIONING OF THE SEPARATE PARTS."

Page 401.

"THE DIFFERENCE FROM THE OLD POSITION IS SO STRIKING THAT IT HAS ALREADY ALMOST DONE AWAY WITH ANY DESIRE TO UNDERTAKE BIOLOGICAL RESEARCH WORK WITH THE OLD METHODS."

Page 403.

"Pathology is turning to chemistry because, NOT HAVING GOOD METHODS OF ITS OWN, it hastily seizes on methods WHICH MAY BE GOOD BUT ARE FOREIGN TO IT, without always taking into account the limits of their applicability. This is NOT THE FIRST TIME that pathology is passing through such a period."

Page 403.

"However, no one doubts that physiology arranges its data in systematic order, and that it forms an independent branch of science. IT DOES NOT OWE THIS TO THE GREATER ACCURACY OF ITS METHODS, OR TO

A CLEARER FORMULATION OF ITS AIMS, BUT TO THE UNIFORM AND HARMONIOUS DEVELOPMENT OF THE SEPARATE PARTS. IT IS TERRIFYING TO THINK WHAT WOULD HAVE HAPPENED TO PHYSIOLOGY IF, IN THE PROCESSES WHICH IT STUDIES, NERVOUS INFLUENCES WERE IGNORED AS PERSISTENTLY AS THEY HAVE BEEN UNTIL RECENTLY IN PATHOLOGY.

"Pathology also has chosen the path of comprehensive analysis. But analysis alone is not enough for setting the data in order, for systematizing them and creating working hypotheses. Synthesis is required. In pathology, this became absolutely indispensable from the moment when it became clear that the confusion in its views did not depend on lack of details.

"Consequently, one more obstacle remains to be overcome in order to achieve the desired aim. We have to define the principles which at the given moment are best capable both of unifying the data and of putting pathology on the path of effective work.

"The difficulty of the task consists in finding these principles, since up to now pathology has not had time to acquire an independent character. The blame for this must be laid on that view of the science which regards it as physiology plus an accessory irritating agent. But if this were so, logic demands that the cause for its special character should be sought precisely in the accessory feature. It has been demonstrated more than once in this book that it is this that has given rise to the chief confusion.

"Pathology is not merely the disorganization of physiological co-ordination, not merely the derangement of normally existing connections, but the creation of new conditions unknown to physiology. THIS CHARACTERISTIC FEATURE, THIS NEW QUALITY, WHICH MAKES PATHOLOGY AN INDEPENDENT BRANCH OF SCIENCE, IS INTRODUCED INTO IT BY THE NERVOUS COMPONENT OF PATHOLOGICAL PROCESSES."

Page 405.

"It remains to say a few words in answer to objections of a more concrete character. IT HAS BEEN SAID THAT BY REDUCING 'EVERYTHING' (?) TO THE NERVOUS SYSTEM, WE LEAVE OUT OF ACCOUNT SUCH WELL-ESTABLISHED ACTIVE FACTORS AS CONSTITUTION, ENDOCRINE AND NEURO-HUMORAL FACTORS, ETC.

"This is not correct. We do recognize them; still more, we use them and will continue to use them in our work no less than others. But surely, our main task IS TO FIND THE PRINCIPLES UNIFYING THE MATERIAL, to create a point of view by means of which it can be evaluated." Page 406.

"WHAT CAN BE UNIFIED IN A SYSTEM WHICH LIVES IN PERPETUAL EXPECTATION OF AID FROM OUTSIDE FOR INTRODUCING ORDER WITHIN ITSELF? THE DATA THAT WE HAVE DESCRIBED CONTAIN MANY EXAMPLES WHERE, BY ACTING ON A PARTICULAR PART OF THE NERVOUS SYSTEM, WE CHANGE THE WHOLE 'CONSTITUTION' OF AN ANIMAL IN THE MOST RADICAL FASHION. THE PRESENCE OF ALL THE OTHER FACTORS DID NOT ENSURE THE

PRESERVATION OF THE PREVIOUS STATE. In consequence, one can consider that the action of all those influences which in their sum total go to make up the content of the word 'constitution' ARE ALSO DETERMINED BY THE NERVOUS PART OF THE PROCESS, THAT IT IS ACTUALLY JUST AT THIS POINT THAT ALL THE LINES INTERSECT. The decision of the question we are dealing with would give possibilities of new development to the neglected theory of the constitution and would put an end to prejudice and stagnation in the use of indicators by setting the task of determining what each of these indicators actually indicates in the highly complex system of relations under consideration.

"The same thing has to be said of humoral factors, both of endocrine and nervous origin. These factors form part of the general conditions of life of the organism and ensure the associated activity of its constituent parts. BUT HOW THEY COULD SERVE AS A BASIS FOR UNIFYING THE COMPLEX DATA OF PATHOLOGY IS ABSOLUTELY INCOMPREHENSIBLE. If it is proper to use for this purpose the endocrine function of the thyroid gland, suprarenal or testicle, why should we not use for the same purpose the liver, bones or muscles? And if, in spite of everything, we agree to work of this nature, WHAT COULD POSSIBLY RESULT FROM IT EXCEPT DISCONNECTED CONCEPTIONS?

"It is still more strange that nervous and neuro-humoral influences should be contrasted with one another. The latter result from the formation of special substances in the tissues. But is not irritation of the nerve the cause of their formation? It has proved to be advantageous to the general functioning of the organism that the maintenance of a particular function began by nervous excitation should be subsequently entrusted to other mechanisms. A NERVE STIMULUS CREATES IN THE TISSUES A DEFINITE SUBSTANCE WHICH AFTERWARDS ACTS AS AN IRRITATING AGENT, AS THE ORIGINATOR OF OTHER, BUT QUITE DEFINITE, REACTIONS.

"We cannot be reproached with underestimation of the neuro-humoral factor. We observe with interest the work begun by Loewi and now continued in many other places. The investigation in this field of Professor I. P. Razenkov and of the laboratories and clinics connected with him have also given results of great interest and practical value. But we cannot accept an overestimation of the significance of this factor FOR UNIFYING THE DATA OF PHYSIOLOGY, AND STILL MORE OF PATHOLOGY. NEITHER NOW NOR LATER WILL THIS BE SUCCESSFUL, FOR THE SIMPLE REASON THAT THE NEURO-HUMORAL FUNCTIONS DO NOT EXIST APART FROM THE NERVOUS FUNCTIONS. THE HUMORAL FACTOR IS THE REFLECTION OF NERVOUS INFLUENCES IN THE PERIPHERAL TISSUES, WITHOUT WHICH NOT A SINGLE NERVOUS FUNCTION IS KNOWN TO US.

"With this our book comes to a close. It does not claim as yet to expound general pathology in the light of the new principles. Its object is to give a systematic account of the data that have come into our hands and to draw the basic conclusions which can serve for constructing the theory of medicine. The remainder has to be left to the future.

"Whatever attitude is taken towards our exposition, it must be recognized that the appearance of the book is timely. DURING THE POST-WAR HISTORY OF MEDICINE, EVERYONE HAS EXPERIENCED A CERTAIN DISSATISFACTION AND WEARINESS IN THE FACE OF VERBAL MYSTICISM, A DISILLUSIONMENT IN WEALTH CONSISTING OF UNREAL VALUES. THE MEDICINE OF VIRCHOW, PASTEUR AND EHRLICH IS APPROACHING EXHAUSTION AND CANNOT COPE WITH THE CONTRADICTIONS THAT HAVE ARISEN. Along with the part that is still firmly based, THERE HAS BEEN ACCUMULATED MUCH THAT IS UNSUCCESSFUL, DOUBTFUL AND PARADOXICAL." Pages 407-08.

"THE THEORY OF MEDICINE HAS ON ITS WALLS SUCH A NUMBER OF WEAPONS INCAPABLE OF BEING FIRED THAT IT PRODUCES THE IMPRESSION RATHER OF A MUSEUM THAN OF AN ARSENAL.

"A way out of this position must be found. Criticism alone, however merciless, will not save the situation. Before pulling down the old edifice, one must have a plan of the new one, one must assess and collect the means. This is the reason why our experiments have had to embrace such a number of questions.

"IN REGARD TO A REVISION OF PATHOLOGY, THE TIME HAS COME FOR A REVOLUTION; IT HAS MATURED, IT MUST BEGIN, THE MORE SO BECAUSE IN THIS REVOLUTION THERE IS INDEED NOTHING TO BE LOST BUT 'CHAINS'." Page 408.

"PHYSIOLOGY OF THE NERVOUS SYSTEM

"By J. P. Morat of the University of Lyons, Authorized English Edition Translated and Edited by H. W. Syers, M.A., M.D., Physician to the Great Northern Central Hospital. Published by W. T. Keener & Co., Chicago, Illinois, 1906.

"Preface

"In every living being a DOUBLE CURRENT of matter and energy is present, RUNNING IN A DEFINITE DIRECTION WHICH NEVER VARIES. In these two currents the transformations of energy accompany those of matter; they are sometimes united, sometimes separated, and their union is the starting point of a cycle of which their separation emphasizes the termination. The cycle is the simplified image of vital EVOLUTION; and in it the first traces of organization are sketched out. But in proportion as this cycle becomes complicated and elaborated we may observe the advent of fresh cycles more or less resembling it, which superpose themselves, interfere with and bestow upon it a new value. Innervation corresponds to a cycle of this nature.

"In fact, while the material and energetic currents proceed from the ingesta to the excreta through the intestines and the vessels, a third and an incomparably weaker current, that of the nerves, finds for itself distinct and separate channels and intervenes for the regulation of the two former, ensur-

ing for them their most effectual employment. THE NERVOUS SYSTEM DOES NOT PROVIDE FORCE, IT UTILIZES IT; and this duty devolves on it by reason of *the perfection* of its own organization. IT IS THE NERVOUS SYSTEM WHICH DECIDES AT WHAT MOMENT THE ENERGY ACCUMULATED BY THE LIVING BEING SHALL BE LIBERATED, in other words shall leave matter and *exert its motor functions*. This point it decides with the assistance of information communicated by the organs of the senses, and by means of a sometimes extremely lengthy work of internal elaboration brought to bear on this information arriving from the exterior.

"In short, by the disturbances entering into it *the nervous system receives impressions from the external world of which it thus obtains knowledge*; by its own activity it forms a judgment of all surrounding it from the point of view of utility; finally, it reveals this judgment by a motor act calculated to ensure the preservation of the organism. Such is the cycle of the nervous current; it implies successively an external phenomenon of impression, an internal phenomenon of sensation, another external phenomenon of motor response to the impression, itself followed by another internal phenomenon or sensation registering the accomplished movement. IN THE NERVOUS SYSTEM ALL MOVEMENT INDUCES SENSATION, ALL SENSATION INDUCES MOVEMENT. This system amongst its most extraordinary attributes possesses a power of adjournment concerning the events depending on it. These events, which on a reduced scale and in a condition of representation or images, it constructs internally with the data furnished by the senses, it *preserves until an appropriate moment arrives for partially realizing them in the form of external movements*.

"From the fact of *the introduction of sensation into the cycle* unrolled in the nervous system, events assume for it a particular significance which otherwise they would not possess. According to the effective tonality (agreeable or painful) of the sensation, *they are either favorable or the reverse*. Obviously, and in spite of the errors which it may commit, *the living being seeks the former and avoids the latter*. Whether its activity is free to choose or whether it is enclosed in an inflexible determinism, is a problem which it is not the province of physiology to inquire into. But whether rigid or elastic this determinism includes a new element and factor, sensibility, which outside of the living being is either wanting, or at all events is not apparent.

"THE RELATIONS BETWEEN CAUSE AND EFFECT WHICH ELSEWHERE SEEM SO SIMPLE ARE HERE ON THIS ACCOUNT EXTREMELY COMPLICATED AND MODIFIED. The power possessed by *the living being, and more especially by the nervous system, of the internal preservation of external events* by their reduction to the condition of representations and of their later realization and enlargement in the form of visible movements, conveys to us the false impression that the end and aim of an act is the cause of this act. The cause of an act cannot be in the future, BUT MAY BE IN THE MEMORY OF A PREVIOUS ACT of the same nature remembered as being *either useful or hurtful* and which on this account determines the direction given to the movement. THERE MUST ALWAYS BE AN AIM.

a general or particular tendency determined by the sensory nature of the living being, but this aim is an effect and not a cause. The past always involves the future, but in this past the living being knows now to choose, and when it recreates it does so as much as may be to its own advantage; whence its almost indefinite degree of perfectibility.

"Thus we can see that the study of physiology gives rise to, or at any rate borders on, problems which are not in any way its special province; and for the rest *demands from psychology solutions* which the latter seeks for with the aid of its own methods. A KIND OF NEUTRAL AREA, common to both sciences, exists which the former endeavors to appropriate by pushing farther back the boundaries separating it from the latter. Progress must inevitably be slow, as apart from the fact of this study bristling with difficulties of every kind, methods, in spite of the efforts of a host of inquirers, *still remain crude and unsuited to the infinite delicacy of the organs of the nervous system* and their component elements."

J. P. Morat.

Pages VII-IX.

"INNERVATION

"In the living being all the phenomena appertaining to crude matter are observable, BUT THE CONVERSE DOES NOT HOLD GOOD. IT IS OBVIOUS THAT A BEING ENDOWED WITH LIFE POSSESSES CHARACTERISTICS AND PRESENTS MANIFESTATIONS FOR WHICH IN DEAD MATTER WE CAN FIND NO PARALLEL; and the most marked feature distinguishing the one from the other is that of sensibility. Here is brought before our notice a fact of a purely internal nature, ELUDING OBSERVATION as it is generally understood in science, BUT WHICH COMMON SENSE CONSTRAINS US TO ATTRIBUTE TO BEING RESEMBLING OURSELVES, WHILE AT THE SAME TIME DENYING IT TO ALL OBJECTS IN WHICH THIS RESEMBLANCE CANNOT BE DISCERNED.

"Sensibility and Energy.—This attribute, sensibility, cannot in the living being act as a substitute for the energetic phenomena of matter; *it is merely superposed to these phenomena, and connected with them by a double reciprocal link*. THEY PRESIDE OVER IT in the sense that a subject gifted with feeling must, of necessity, require an object to be felt; and, on the other hand, sensibility exercises a control over these phenomena of energy, inasmuch as, though incapable of modifying them as a whole, *it can still regulate and control them in their execution of functions* directed towards an end of which the living being itself is conscious. THIS RECIPROCAL LINK NOT ONLY CONTROLS THE RELATIONS OF THE LIVING BEING WITH ALL SURROUNDING OBJECTS; IT IS ALSO, AND SIMULTANEOUSLY, THE DISTINCTIVE FEATURE OF ITS ORGANIZATION. In its development, as much ontogenetical as phylogenetical, it is the living being which is at once both artificer and final cause.—From this double link, SO FRAIL IN ITSELF, AND YET SO INTIMATE, PROCEEDS THE UNITY OF BEING ENDOWED WITH LIFE, and in this organism, where each part depends on the whole, and the whole on each part, a synthesis is effected which confers upon it its individuality. *This prodigy of complexity is also a prodigy of unity.*

"Sensibility and Determinism.—A SCIENCE HAVING FOR AIM THE STUDY OF A BEING SO CONSTITUTED SHOULD NEVER LOSE SIGHT OF THIS DOUBLE CHARACTER, and more especially when appealing to the methods and general principles of other sciences. Dissociated and brought back to the crude state of common matter, the primary elements constituting the living being reveal to us in their reactions the same inflexible constancy that characterizes the laws known as physico-chemical; yet, associated in the individual, their grouping and organization display that infinite variety and contingency whence individuality is derived. How can this proceed from that? HOW CAN THAT WHICH IS INVISIBLE IN THE ELEMENT BECOME APPARENT IN THE WHOLE? TO THESE QUESTIONS WE CAN FIND NO ANSWER; *but, in science as elsewhere, it is always imprudent to run foul of the information given by common sense, and a problem is not solved when one of its terms has been omitted.*

"The mind, desirous of being logical, is in fact at first offended by this contrast, and endeavors to annihilate it by evading one of the two points of view. The rigid determinism of purely energetic sciences has been transported, without restriction or selection, into biological science. IN THE PAST, AND EVEN AT THE PRESENT TIME, PHYSIOLOGY HAS OVERLOOKED, AND STILL OVERLOOKS, THE FACT OF THE BEING WHICH IT STUDIES POSSESSING SENSIBILITY; AND HAS IN EVERY CASE REFUSED TO ACKNOWLEDGE THIS SENSIBILITY AS A CAUSAL OR CONDITIONING INFLUENCE IN THE DETERMINISM OF VITAL PHENOMENA. It has carefully arranged the balance-sheet of the forces of the organism, WHILE TAKING NO INTEREST IN THE FUNCTION WHICH REGULATES THEIR EMPLOYMENT. AS PHYSICAL SCIENCE FINDS NO PLACE FOR SENSIBILITY, NEITHER HAS PHYSIOLOGY ACCORDED IT ONE. THE TIME SEEMS TO HAVE ARRIVED FOR A REACTION AGAINST THESE EXAGGERATIONS. In the living being, just as MOVEMENT DEPENDS ON SENSATION, SO DOES SENSATION DEPEND ON MOVEMENT. In both cases the nature of THE LINK IS UNKNOWN TO US; BUT NONETHELESS DOES THIS LINK EXIST, and is in biology the foundation of all that distinguishes it from pure physics.

"Sensibility and Organization.—In the *living* world sensation presents extremely varied degrees, and its development proceeds on a line parallel with that of the organization itself. It is only strongly marked in beings provided with the differentiated system known as the nervous system; it increases in importance and elaboration with the progressive development (phylogenetical and ontogenetical) of *this system*. In such beings, of whom we ourselves form a class, a division of attributes is effected between the tissues, some of these employing the efficient energies which take part in the execution of organic actions, while another, *the nervous tissue, watches over this employment, coordinating and regulating it*. This latter is pre-eminently the sensory tissue, and is in a high degree both excitable and capable of causing excitation. It is this tissue which receives the stimulation and returns it, *but transformed by the progress through its paths*; and again it is this tissue which ensures the reciprocal dependence and subordination

of the elements to the whole and the whole to the elements, and so confers on the organism its individuality, its unity.

"Excitability and Sensibility.—All living matter is excitable; or, to put it otherwise, IT RESPONDS TO ACTIONS DIRECTED AGAINST IT, by an expenditure of the special energy which it constantly accumulates internally. THIS MOTOR REACTION IS NEVER HAP-HAZARD, BUT—AND THIS FACT IS DEMONSTRATED BY EXPERIMENT—IS ALWAYS DIRECTED WITH THE DEFINITE AIM OF PRESERVATION OF LIFE IN THE SUBSTANCE STIMULATED. EXCITABILITY IS THEREFORE NOT MERELY A MOTOR MANIFESTATION, BUT IS DUPLICATED BY AN INTERNAL FACT OF RUDIMENTARY CONSCIOUSNESS. It should therefore be considered as either a degraded form or a first rough sketch of sensation. The elaborated organization of the superior animals, by giving to it its highest development, permits of our analyzing the conditions of its existence; fundamentally these conditions are everywhere the same; they are located in the links of reciprocal dependence of the portions composing the organism. The more simple and homogeneous is the latter, so much the more do its reactions resemble those of ordinary movement, and so much the farther are they removed from those which characterize genuine sensibility. But in proportion as the organism is complex and differentiated, so much the more will its movements possess the contingent characteristics of sensible and intelligent beings.

"Action and Reaction.—In other words, THE LIVING BEING REACTS AGAINST ACTIONS REACHING IT FROM THE EXTERNAL WORLD, AND IN SO DOING OBEYS A GENERAL, UNIVERSAL, AND INDEED FUNDAMENTAL LAW, ONE OF THE FIRST INSCRIBED IN THE PHYSICAL CODE, A LAW, OBEDIENCE TO WHICH NO LIVING BODY IN NATURE CAN ESCAPE. Only, from the fact of organization itself, this law has assumed a new character, of which it may be said that it implies in the living being A REMEMBRANCE OF THE PAST AND A PREVISION OF THE FUTURE. The more elevated is the organization, the more prominently does this character stand forth; on the other hand, the nearer we approach the purely physical elements entering as components into this organization, so much the more is this character effaced, nothing being left but the simple reaction strictly and solely answering to the action of THE PRESENT MOMENT. VITAL reaction, practically so different from PHYSICAL reaction, proceeds from it by successive halting places and elaborations, just as the living being itself is evolved from progressively organized crude matter.

"Division.—The nerve tissue is, like all other tissues, originally formed of cells; but while other cellular structures are usually merely composed of duplicated and juxtaposed elements, it, thanks to the connexions established between its component parts, displays a genuine systemization. Its study may therefore be carried on from two different points of view; one in which the functions common to all its elements are considered (cellular functions), the other, in which the functions special to the groups or systems formed by these elements are taken into account (systematic functions). In the study of nerve tissue the distinction between these two orders of functions is a

fundamental one, and the obscurity still enveloping numerous questions connected with this study is partly due to the fact of this distinction being so frequently ignored.

"The first of these studies completes the history of the cellular functions arranged in unison with the principal types of living elements. The second permits of our penetration into the aggregate functions to which the mutual association of these elements gives rise, and it is in the nervous system that we shall find the connexion where these aggregations are brought into being and their functions organized. THE STUDY OF THE NERVOUS SYSTEM IS A KIND OF NODAL POINT IN THE EXPOSITION OF PHYSIOLOGICAL SCIENCE."

Pages 1-4.

DISCOVERY IS NOT PROOF

A principle-constant was conceived by D. D. Palmer, in 1895, on a quantity flowing energy proposition.

Would that conception prove true or untrue?

- life is motion
- there is no motion without energy to move matter
- health is a rate of activity
- if rate of speed of motion is normal — health
- if slowed down — sickness and dis-ease
- to reduce quantity flow of energy is to produce dis-ease
- vertebral subluxation shorts energy flow
- vertebral adjustment restores it and restores health.

IT IS IMPORTANT WE STUDY AND KNOW QUANTITY ENERGY FLOW.

At first we began to research into what later proved to be the by-products of energy at work, viz., sounds; both normally — such as heart beat, breathing, etc. — and abnormally, such as rales, gas rumblings, palpitations, asthmatic, etc.

Later, we took up question of vibration of structure when energy made it work — the products of function. This was a trifle closer to our coveted objective.

All methods we used, and various instruments in use, worked upon either of the above two approaches.

Weaving all thru the pattern was a missing link. We were not satisfied; we were so near, yet so far. Then came the desire to

get into the study of THE PRODUCER DIRECT — generation of mental impulse supply in brain; transmission of that mental impulse supply between brain and body; transmission of result of that flow between brain and body, known as impression of sense between body and brain; and then responsive reaction in mind in brain to its interpretation when it arrived, etc.

NOW we were getting somewhere.

OUR STEPS IN RESEARCH ENERGY

Long ago, investigated Electronic Reactions of Abrams under its various manufactured and sold forms.

- the principle that there is a quantity electric potential in living bodies
- that each organ has a quantity electric potential of its own
- that the total body has a quantity electric potential of its own
- that these quantity electric potentials of each organ vary in sickness and health
- that total human bodies have a common denominator quantity electric potential, in health and sickness
- that when below-par potential was brought up to par potential would change sickness to health
- was correct in principle;
- but it was a delusion, fraud, impossible to make work in practice by studying
 - vibrations of blood removed from source of its normal quantity energy supply
 - instruments manufactured were not correctly electrically manufactured to prove or disprove either
 - that you cannot supply externally and artificially below par to par, or above par to par, what must come naturally from internal.

D. D. Palmer's concept, IN PRINCIPLE, practically rested on same fundamental working-principle advocated by Abrams, as stated above.

Restated, it is:

- There is a totality unital quantity mental impulse potential, completely and naturally, internally generated, in every living composite body.

- Each living organ has its own quantity mental impulse potential, completely and naturally, internally generated for it, in brain, and from there transmitted to body.
- These composite organic and unital quantity mental impulse potentials, which are completely and fully, internally generated, are sufficient unto its needs, in health, sickness, restoration to health
- When these organic and totality unital functions are working below par quantity potentials, they can be and are restored from where par is, in the body, to where it is below par in that body, and health is re-established.

D. D. Palmer's concept, IN PRACTICE, approached the problem differently:

- we knew mental impulse par was IN the body
 - we knew that all dis-ease was but an exhibition of mental impulse reduction from par to somewhere below par
 - we knew cause of reduction in mental impulse par to below par, was IN the body
 - we knew cure of dis-ease which was below par, TO par, was IN the body
 - we located interfering medium, adjusted it, and permitted what was IN one part of the body, AT PAR, to flow to another part, which was BELOW PAR, that needed it.
 - thus we did not try to externally or artificially GIVE TO, or INJECT INTO body, something it already had.
-

In connection with the investigation of the ERA (Electronic Reactions of Abrams) we ran into interesting human sidelights.

There lived in Davenport a physician whose wife had cancer of stomach. Father saved her, with adjustments. This physician studied Chiropractic; never used it, but continued to practice medicine in Davenport. He considered his affiliation with the medical profession as of more value than getting sick people well.

There came a day when this M.D. began practicing ERA. One by one, individually at first, our students, being curious, began going to his office to witness the practice. They returned mystified and, because it was mysterious and they could not under-

stand how "results" were attained, and because they could not explain how it was done, they told other students. In time, flocks of students went down each night to be analyzed, to know where their subluxations were, where they should be adjusted, etc., for this M.D. not only "diagnosed their diseases" but also "analyzed where to give adjustments for those diseases."

Then came a time when the student body was all agog over it. Various sincere ones told us we should investigate, "as it did things we couldn't do with Chiropractic" alone. They preferred to believe his results with his methods, to ours with our methods. Student body morale, in The P.S.C., was being shattered and strained. Confidence was being destroyed.

Perhaps we should now tell what he did and how he did it.

He had a small revolving platform upon which the completely nude body of patient stood. On top of this platform was a copper plate to which was soldered a copper wire which was grounded to a nearby water pipe. There must be no metal of any kind on patient — such as rings, hairpins, etc. — nor must operator have any such. All tests were made in an almost dark room, ruby lamp excepted. No smoking permitted, or noise such as talking. Observers could be present if quiet.

He had patient stand on platform facing North. He had three fingers of one hand together, touching each other. These he ran up and down and over bare abdomen of patient. He listened carefully for a certain "live" sound when he tapped another finger of other hand on center of three fingers on abdomen. Getting no "live" sound facing North, he would turn patient facing East. He would now get his "live" sound at a certain spot.

Abdomen being topographically laid out, certain spots for certain organs, he would diagnose that individual was suffering with liver trouble (as an example), and tell him he should be adjusted at fourth dorsal which was merically our Chiropractic "liver place." His "live" or "dead" sounds on abdomen told him where to adjust in vertebral column.

Our students thot this was marvelous, accurate, wonderful. We, at The PSC, were being eclipsed. Various students told us we should investigate, adopt, use it, as it was far more positive than our method of those days, which was to ask patients ques-

tions, secure symptomatology, and from this determine he had liver trouble (as an example) and then decide he should be adjusted at "liver place."

Peculiarly, this M.D. and HIS method seldom agreed with The PSC and OUR method. This difference in analysis mystified our students.

Because morale was being badly shot, we phoned the doctor and asked if we could send three of our faculty to study his method. He gladly consented. We sent Drs. Firth, Vedder and Burich — all three being versed in our methods and sincere in their desire to do justice, regardless.

They went down night after night, and came back as mystified as were students, saying, "We believe he has something, but we don't know what it is or how it is done." The fact that our faculty were investigating, and they were mystified, strengthened confidence of our students in this doctor's method.

Finally, we decided to go. We went several nights, each night coming home as mystified as were others. We decided to buy the same outfit from Abrams. We experimented night after night, and COULD NOT attain same conclusions he did, no matter how rigidly we excluded all extraneous variables as he claimed to do and use.

We returned again, night after night, to watch his "technique" most carefully, getting up close to work of his hands. A couple of nights more and we saw his "trick" by means of which he secured the "dead" or "live" lines. In spreading fingers ON abdomen, he could produce a "dead" line anywhere he wanted. By putting them securely TOGETHER, he could produce a "live" line anywhere he wanted, regardless of whether patient was facing North or East. We called his hand. He frankly admitted we were right, but still said we were wrong — that that wasn't the way it worked. He proved we were wrong by keeping his three fingers TOGETHER and still producing "live" or "dead" lines at various areas.

We again watched more carefully, and caught his second "trick". Finger with which he tapped center finger of the three fingers of hand ON abdomen, had an aluminum thimble, tip of which was filled with hot wax, after which he inserted his finger

before it cooled, to give a solid tapping end to thimble. His second "trick" depended upon whether he tapped with the TIP END of thimble or BROAD FLAT surface of ball of that finger. When caught with this "trick", he admitted that also. Having no more "tricks" he had nothing more to mystify any of us.

Having now learned the "technique" as proficiently as he used it, we returned home, woke up the three boys, called them down to the house, and there we violated all the known rules of variables, had lights on, smoked, made noise, stood off platform, did not ground anything anywhere, and we demonstrated how we, too, could produce "dead" or "live" lines anywhere we pleased. We asked the boys to blindfold themselves, stick out a pencil, put it on abdomen anywhere they accidentally touched, and then and there we produced BOTH "dead" and "live" lines simultaneously, at will. The jig was up.

We called student body together in class assembly. We pulled down all curtains, demanded silence, in fact reproduced this doctor's conditions and demonstrated his technique. All admitted we had reproduced exactly all things he did as he did them.

We then reversed process: threw up curtains, asked them to smoke, put metals on bodies, asked them to talk, and still produced "dead" and "live" lines at any place they designated. We then explained how they were produced.

After this exposé, students left the room believing the first demonstration was correct, and second to be sleight of hand, legerdemain performance. They still believed, many of them, that he was right and we were wrong. All this convinced us people like to be humbugged; they do not see what they see, they do not reason, and prefer to believe the mysterious rather than the explainable.

The second experience:

There was a radionic machine manufactured and sold in Omaha.

Manufacturer invited us over to see it demonstrated, with the hope we would be convinced and sell them with our endorsement to the profession, for which we would get a fat commission

on every one sold. Our endorsement was needed to make it succeed.

We said we would come if Dr. Frank W. Elliott (our Business Manager then) and Dossa Evins, an electrical engineer, could come with us. This, manufacturer refused to grant. He wanted us to come alone. We think he thot he could pull wool over eyes of one person better than if there were three. We refused to come unless others could come also. After much correspondence, because he DID want our endorsement, he agreed to let three of us come.

We arrived in Omaha on morning train. He met us with a car. We were wheeled around town, seeing post office, city hall, parks, zoo, etc., until noon, when he took us to a private club for lunch. His reason for stalling was that he "was setting up his instrument in a room in the hotel and it wouldn't be ready for demonstration until afternoon." About 1:00 p.m., we went to hotel.

He conducted experiments and tests, securing "positive" and "negative" reports, until close to 6:00 in evening. He tested patient after patient. We looked and listened.

About 4:00 o'clock, Dossa Evins walked in behind the desk console of his instrument and "accidentally" kicked loose electric plug that went from wall socket TO desk, disconnecting all contact. The doctor went on making tests THE SAME, without current to operate the machine, same as he did when IT WAS connected—he not knowing IT WAS disconnected. He kept getting "positive" and "negative" results the same as before.

About 6:00 o'clock, we called to his attention that he had been working for two hours WITHOUT any current. This did not phase him one bit; he admitted it "would work as well without as with."

The difference in his "technique" from that of the Davenport M.D., was that instead of using three connected fingers of one hand, and tapping them with a thimble-finger of other hand, seeking "dead" and "live" lines, this man had a glass tube connected with a thermal unit inside tube. Before running this up and down abdomen at different places (with same objective as the Davenport M.D.), he would rub it with a SILK handker-

chief, several times. He sprinkled talcum powder on abdomen. Rubbing glass tube ON skin, there would be a certain spot where it would seemingly stick to skin. This was spot where he would stop, and proceed to diagnose case.

The "trick" here was that rubbing silk on a warm glass tube created static electricity in tube. At some time this would be discharged on skin of patient. That was his cue for diagnosis. Peculiarly, his glass tube "stuck" as well or as badly whether electricity was "on" in desk console, or whether electricity was "off" in desk console. That made no difference.

We then tested glass tube and found we could create friction static electricity in glass tube whether warm or cold, with or without electricity being on. We also secured same results whether there was or was not talcum powder on abdomen.

We left this man a very dejected individual. He had anticipated a great build-up and that we would be overwhelmed with the mysterious value of a new law which nobody understood or could explain.

This man had been selling many machines to our profession. He hoped he could sell more, with our support. He hoped that glittering money he held before our eyes would sway our judgment. As expected, each D.C. who bought this instrument went into raptures over "results." They would rant and rave about how they were "getting greater results now than ever before. The machine was nothing short of marvelous, stupendous, colossal, gigantic."

Peculiarly, the field of diagnosis with these instruments was confined. It was either syphilis, tuberculosis, or cancer — three most terrifying diseases in the mind of patients. Fear was a dominant key-note of salesmanship. This convinced them they had something which nobody else had found. It compelled patient to stay with the "chiropractor" (?) for a long, long time, to take treatments before the machine said they were well of these horrible conditions.

With each of these radionics machines there were two divisions: diagnosis as well as treatment. The diagnosis was indicative of a lowered energy value. Treatment consisted of injecting absent quantity of external energy by way of a device clamped to body of patient for a period of one-half to one-hour daily.

Chiropractors who purchased and used these instruments were shovelling in money. People came from far and wide to have this marvelous machine tell them what they had. They stayed for months, taking daily treatments. One machine had many attachments, and dozens could be treated at same time, from same machine. Patient felt nothing, but none the less did it work. This meant thousands of dollars income each month, that would not otherwise have come to this "chiropractor."

If instrument HAD merit, then it had lasting, permanent value in getting sick people well. If it was a hoax and delusion, in time it would be so proved and defeat its end by destroying Chiropractor's practice, his confidence in himself, questioning of his own judgment, value of confidence of his clientele in him, etc. That was exactly the way it worked — but it took several years to reach THAT conclusion.

Today, 1951, this manufacturer is out of business which died because of lack of merit in his instrument or procedure. At the time, no matter what WE HERE said, we were "prejudiced, fighting to sell NCM's by preference, objecting to any other instrument when we had one of our own to sell; we didn't know right from wrong," etc. Time tells its story, as it always does.

Today, 1951, we are still here. The PSC is still teaching Chiropractic, the NCM is still delivering its objective, and Chiropractic continues to correct vertebral subluxations getting sick people well.

Before reciting next experience, there is another historical angle which should be explained:

In early days of ERA, medical profession took it up, went hog-wild over it. In time, it died with them for want of its having practical scientific fact to support it.

Next osteopathic profession took it up. McAnnis Company, Kirksville, Missouri, sold them by hundreds to "progressive" members of that profession. They, too, went hog-wild over it, became enthusiastic over its use. In time, it died with them for want of having practical scientific fact to support it.

Next Chiropractic profession, not having learned any lesson from experience of medicine and osteopathy, took it up, went hog-wild over its diagnostic value and treatment accomplishments.

Now, in 1951, it is in use in only a few offices of practitioners who think more of money than they do of getting sick well.

Talk to those who still use it, and the only argument they offer for its use is that it "brings in the money" faster and in greater quantities than anything else this practitioner can use on his patients. They admit frankly "it does not diagnose correctly, neither does it get sick people well, but it is mysterious, people like to have gadgets worked on them, like to think they are having much done for their money," etc.

Another Chiropractor in Minneapolis, very sincere and honest in his desire to add to his "armamentarium" to get sick people well, purchased and used for some months a radionics instrument for diagnosis as well as treatment.

He became very much enthused; in fact, went nuts over it. The longer he used it, more enthusiastic he became, so much so that he asked that we come and investigate most marvelous work he was now doing — better than ever before, etc. Having investigated the principle and practice, in application, it was not necessary to test or try out each new form of gadget that was manufactured and sold to our people. We did not go to Minneapolis.

Being sincere, he invited the president of another Chiropractic college. Being importuned time after time, more to get rid of correspondence than anything else, this president went to Minneapolis. He spent all day watching tests and going over records.

At the end of the day, this president asked this D.C. if it "told him where to adjust the subluxation." The answer was, "No." All it did was "diagnose correctly and give proper treatment to supply external energy internally." Then, said the president, "I am not interested if it has no CHIROPRACTIC application."

Within thirty days from time this president returned to his college, their school house-organ announced the sale of this same instrument thru its pages. A picture of it was in the publication.

Thru round-about means, we purchased two of this same machine. One we kept intact, as received from factory. The other we turned over, as received, to five electrical engineers of

known reputation; asked them to open it up and draw a diagram of what they found inside the instrument. They did.

The box weighed 22 pounds. They took out 14 pounds of pitch that had been poured in over the internal mechanism. Later it was obvious why they poured in pitch. Upon investigation, open wires, attached nowhere, open circuits with no connections, were found. It was easily proven, authenticated, and sworn to that this machine **COULD DO NOTHING ATTRIBUTED TO IT.**

We published this report and affidavit, sworn to by five engineers; photos of box before and after, outside and inside, and published them in The PSC Fountain Head News. Within thirty days after that exposé, this other college quit selling them.

We cannot understand why any person would want to purchase without knowing, use without proving, commend without establishing any fact in connection with it; how the Chiropractor in Minneapolis could say it did things when it couldn't; how he could become enraptured with its possibilities when it possessed none; how this other school, having condemned it as of no Chiropractic value, began selling it to Chiropractors thru a Chiropractic house-organ coming from a Chiropractic school. The logical and reasonable thing to do would have been to go into the box, see the guts of the workings, **AND KNOW**, before making a purchase or offering it for sale.

Why are Chiropractors gullible? This Chiropractor in Minneapolis later quit using the instrument, sold it to some other Chiropractor who was as gullible as he who first bought it. Why foist it off on somebody else when he was convinced it had no value?

ELECTROENCEPHALONEUROMENTIMPOGRAPH

One valuable instrument in use in The B. J. Palmer Chiropractic Clinic, for purpose of ascertaining and proving a correct spinal analysis and its correction, is the electroencephaloneuromentimpograph. This instrument measures, evaluates, and calibrates **QUANTITY** flow of mental impulse from brain to body,

both BEFORE AND AFTER adjustment, PROVING correct place, correct time, correct manner.

Graph wave patterns are first test made in this Clinic, preceding others. Subsequent graph wave patterns are made bi-weekly. One graph wave pattern is comparable to those taken previously. Comparison proves INCREASE OR DECREASE of mental impulse or nerve force flow, proving adjustment as well as whether case is getting better or worse.

Electroencephaloneuromentimpograph No. 1 is still in our labs. It required twenty sets of a particular dry cell battery. This particular type of battery went to war, and we were unable to get more. For approximately one year (1944) electroencephaloneuromentimpograph No. 1 lay idle. To obviate this difficulty, we constructed instrument No. 2, more simple in construction, which works WITHOUT batteries. We keep set No. 1 as a spare in reserve, in event of a breakdown of improved set No. 2. From now on, the 'timpograph is a permanent and continuous service of this Clinic. Electroencephaloneuromentimpograph No. 2 is now in use (May, 1945).

Instrument NOW IN USE is the largest of its kind in the world. Eight pick-up channels are at our disposal. Average case will more than likely not need all at one time, but difficult or complex cases, needing research to solve, may. Ninth channel is second-timing recording channel.

As simple as instrument is, interpreting graph wave patterns, each of eight comparative to other seven of any one case, is complicated and mysterious to an average person. Comparing one week's graph wave patterns with another week's graph wave patterns is more complicated. The one person who has solved many mysteries of the use of this instrument is B. J. Palmer. To him, it is largely an open book. To make patterns is simple. To interpret them is complex.

Cases desire information this instrument reveals about themselves. To go into detail requires groundwork of understanding of what instrument does, how it does it, what it reveals, etc. To explain to patients would require hours; therefore we suggest cases refrain from asking detailed information. We can and will give brief summaries of what it is revealing.

OUR CUSTODIANSHIP OF CHIROPRACTIC

We here have at long last felt there was too much guessing; too little knowing; too much high-pressure gab; too little delivering; too much selling; too little proving. To overcome these and to properly evaluate service, we decided to build, equip, and establish a Clinic along scientific lines. For 15 years we have been at work. We have said little, done much, published some. We are now ready to go into some detail, as a custodian of our work for the profession, to tell what we have done, how we have done it, and with what results.

Scientific work, when recited, going into detail, is at its best not interesting. On the reverse, it is tiresome, boring, except to him who thrills in doing right things right.

Greatest part of what has been going on is not seen with the eye of even observant persons who tour our Clinic. You go thru, listen to your guide, come out with a full understanding of what it's ALL about. We assure you, your guide cannot scratch the surface, for the REAL meat of our work is in the abstract and is hidden deep. It must be unearthed slowly and carefully. Things you objectively SEE in a tour of our Clinic are important because they lay foundation for existence of things you DO NOT or CANNOT see. You SEE physical assets. You CANNOT SEE processes which pass in and between arrival of case and his dismissal.

You will come out at the end with an understanding that Chiropractic is a safe, sane, sensible profession — safe from enemies who bore from within, and safe from enemies who blast from without; further understanding that many Chiropractors sit on and ride in uncertain seats from whence many mighty will take great falls. But, who can prevent it if facts warrant? The X-ray upset much. The NCM at another time upset more. Present research will again modify, amend, and change preconceived opinions of what we thought we knew about mental impulse nerve force energy flow.

You may look upon our huge clinic building, its large rooms, its unlimited equipment, and its tremendous expense, and raise the question: "If I must have all this to be a competent Chiropractor, then I am sunk before I begin"; become discouraged because of impossibility of equaling it in your offices.

You must look upon this Clinic as a professional laboratory of research for you and your problem cases, where we seek information. There are many electrical shops scattered throughout the land. All do competent and efficient electrical work. None is equipped for research work like General Electric, Western Electric, RCA Laboratories, etc. There are many automobile repair shops, where cars are overhauled, repaired, rebuilt. Each does competent and efficient work. None is equipped for research work like Ford or Chrysler laboratories. Nor is it necessary they should be. In like manner, your many offices scattered throughout the land — each is equipped to receive, repair, and rebuild human sick bodies. None is or will be equipped for research work as we are here. Each of your offices does competent and efficient work. We will do research work, pass it on to you; you carry on with fundamental principles which we work out for you here.

Look at it in this constructive light, all research we gladly pass to you, then all we do will be of inestimable value. Much expensive equipment we have, you will never need, could not use in a regular every-day practice, for you would not have a sufficient number of unusual cases to use it upon or a trained research staff to conduct same. If you ask what part of our equipment is advisable for you to have in a modern office, to help with ordinary cases, we suggest a shielded and grounded booth for neurocalometer, neurotempometer, neurocalograph, as well as precision X-ray equipment. These ARE important to do efficient, accurate, and competent Chiropractic work on cases such as come to your office day after day. Beyond that, rest of our equipment is for individual problem cases which each of you get OCCASIONALLY, which we here get almost entirely. This Clinic is a gathering place for YOUR problem cases; thus we get many of which you get an occasional one.

Equipment is a question of Chiropractic demand and supply according to types of cases a Chiropractor gets. If you have a practice of regular every-day type, a certain reasonable and limited equipment suffices to get a percentage of them well. If you have a more difficult type, then more and varied Chiropractic equipment becomes necessary to more correctly apply a better Chiropractic health service to get that additional percentage well. If you get an occasional problem case, it would be nice to

have best equipment possible, to take care of this rare case; but does cost justify on one case now and then? Here we get an entire practice of worst cases, referred from everywhere, gathered from entire profession, sent here as a nodal point for solution of rare cases. For them, we are compelled to have not only the best, but all of very best; and where no such equipment exists, we make it, to render a last word in highly developed solutions of most difficult cases; to render a rare Chiropractic service. Every Chiropractor is going as far as he deems warrantable to his practice to get them well. You may not find an NCM or X-ray necessary. Others may feel they do better work because of them. Others may care to go beyond those and add higher developed methodical equipment with more scientific attainments. Their practice may justify expenditure. We believe the last word is vital to progress of type of cases we get here. With this opinion, many Chiropractors agree because they refer such cases to us. Without ANY equipment but a bare table and hands, any Chiropractor who sticks to the back and uses ancient or modern Chiropractic will get more sick people well than any other profession.

It depends upon what one wants to do, where one wants to go, and what one wants to accomplish as to what equipment one desires, secures, and uses. Many people are satisfied to travel twenty miles an hour with old-time type of Ford. Others want Model T and go at thirty miles. Others desire more comfort and speed and latest issue, so they can get there at sixty miles. No matter which Ford you buy, EACH WILL GET YOU THERE, sooner or later; some over rough roads and slow; others over smooth roads and fast. Same is true of Chiropractic — 1895, 1900, 1946, 1951. Each year from 1895 to now has made strides in getting sick people well. D. D. Palmer did it with Harvey Lillard. Every Chiropractor has been doing it since, with or without each step of our evolution. No matter what year, Chiropractic got sick people well. How proud we have been of that record. At no time have we been ashamed of the model, its performance, or people who made those records. At times we seem impatient in desiring to see everyone have 1951 development; but this is as impossible as for everybody to have a 1951 Ford. Every man has a right to practice whatever year of Chiropractic he thinks best to accomplish his objectives. We yield preference to will of majority and keep on working, trying to help him do better.

We do not anticipate another Clinic like ours will be built. We do not expect Chiropractors to equip their offices like this Clinic. In first place, it is not necessary — would be unnecessary for the once-in-a-while unusual case you get, upon which it becomes necessary. Here it IS necessary because practically every case is a problem upon which equipment becomes vital to their welfare.

It is ordinary cases you get, keep, and get well. In this respect, you perform a great and glorious service. We want extraordinary case that becomes a problem to you. What is an ordinary or extraordinary case? That is the problem. Sometimes, so-called "simple" cases are extraordinary; sometimes "difficult" cases are ordinary. No one can tell in advance. Any case that comes to you, whom you DON'T get well, is a problem case to you. That is the case we want. What we want are those murdering, life-taking mysteries you have not solved. With our laboratory equipment, Sherlock Holmes steps in and solves the baffling problem. We find clues where there are none; pick up evidence which has grown cold, which no blood-hound can scent. We dig it up, pull on past experience, recall some other problem solved, maybe use some or all of it on a new case. Sooner or later we catch the criminal subluxation, put him on trial, make him confess under third degree "lie-detector" methods, convict him, and lock him up so he will not destroy more life. This is a game we play, that of health master criminal hunter. We play it here when others have failed. Our laboratories do thief-catching work. We do to the thief of life and health what policemen of safety of life and limb do in court cases. We take a hair here, a bit of dirt from under finger-nails, so to speak, trail and trace it, and finally point the finger on THE subluxation. That is the work of THIS Clinic. When you understand our function, you will send YOUR unsolved mysteries — for there are many.

We maintain two kinds of service. In both, we DO the thing you CAN'T DO, viz., analyze your cases, locate causes, and then adjust them here until returned home well; or, once we have analyzed them, return them so you can get them well. In either instance, it is a service to the profession to solve problem cases so the sick CAN get well.

No man can live without giving; no man can keep on giving without getting. Bluntly, greed motive works into all human

activities. It need not, however, be dominant. The laborer is worthy of his hire, but to increase one, both must increase. Service must come before pay; increase service, and you increase income. And that is why we here ask you there to send your problem cases, that we may solve them, return them to you, that you may increase our service to them and to us, that we may increase our service to them, to you. With increased service all around, comes increased income. Send problem cases here for not less than two weeks, let us analyze them with scientific equipment in our laboratories. We will return case to you with suggestion he stay with you UNDER OBSERVATION not less than 3 months. During this period, we urge you to not over-adjust. The ideal situation would be to check daily and not adjust unless ABSOLUTELY NECESSARY, thus proving our analysis correct to case, to you, and with credit to ourselves and to Chiropractic.

Have you ever been a father or mother? Have your children grown up? Didn't always do things to please you, did they? Right or wrong, good or bad, no matter where they went, what they did, they WERE YOUR children and you were ALWAYS glad to welcome them back home. Wouldn't be HUMAN if you didn't. They can't always follow the footsteps of Dad and Mother; perhaps what they've done WAS wrong; some day they'll realize that Father and Mother may be "old fashioned" in SOME things, but they'll also realize there are certain fundamentals that FASHION doesn't change thru the years.

It pleases us to see new faces, to see older ones, to see adopted orphans of other schools. Many may have strayed far, wide, and handsome from teachings we taught at the family fireside, but we're always glad to have you back in the fold. You're as welcome as are any Dad's and Mother's kids still at home.

It is good to have you here again, especially those who have not been home for so long a time. Even if you have forgotten the old homestead was here, it is still your CHIROPRACTIC home — a home where all our children should feel privileged to come any time when Dad or Mother can help. We have never closed our doors to our Chiropractic children. We longed to have you come to see us.

Good or bad, right or wrong, you're welcome. Stick your feet under the table and mother'll bake a good old-fashioned Chiropractic pie especially for you!

FUNDAMENTALS

In 1895, D. D. Palmer laid down a NEW principle that cause and cure were within, cause being a vertebral subluxation with sequential conditions. WHICH vertebra, WHEN, HOW, WHY to adjust? Which vertebra NOT to adjust? When NOT, why NOT to adjust? These were questions unanswered which time would solve. Twenty-four vertebrae ahead of us. Only ONE should be adjusted. Having laid that principle, an efficient practice was to be established. "Practicing" up and down entire column, in all that word implies, began.

The entire spinal column was "practicing" territory. Every day, entire spine, adjusting here and there, one or more, any place, any time, was correct procedure in those years. Many "moves" were played up and down this all back-bone checker-board. In those early days too much was incorrectly done, too many inefficient places, too often, when not necessary. Occasionally a case got well IN SPITE OF rather than BECAUSE OF what we did. They got well not because WE KNEW which, when, how, and why, but because we occasionally and accidentally stumbled across the right which, when, how, and why, and happened to stop at right time. Many a case voluntarily stopped of their own accord, after FIRST adjustment, went home, never returned — and got well. THEY did, without knowing, what we should have done, KNOWING.

Today, fifty-six years later, we adjust ONE place, a gross average of 28.9 days between, in each case. The difference between twenty-four vertebrae and one, every day and 28.9 days between, is KNOWLEDGE gained by the exclusive process of deduction for facts, recognizing them scientifically, researching until compiled into a series of efficient procedures. Building constants and eliminating variables reveals what we NEED know about presence or absence of a vertebral subluxation; when and when not pressures exist, where and where not to find them, and why we should or should not adjust this direction or that, at this place or that. One of the important fact-finding systems consists in step-up of constants and elimination of variables, with NCM and X-ray work. Formerly, WITH variables, we did more, at more places, than we do now, because we interpreted variables as constants.

Imagine a typewriter, sheet of blank paper, on one side; man with a desire to write a legible and intelligent article on that paper, with typewriter. Imagine man who has ideas and wants to write, doesn't know where the lettered keys are and cannot mentally see them. That's where the average Chiropractor either was or is, unless he knows where, when, how, and why. The typewriter has letters, they are willing to be struck and to record proper word and thot sequences. Man has ideas thot out; program is established of where he wants to go; he has ability to write paragraphs and chapters of understanding thot—but doesn't know where lettered-keys are. Not knowing, he pecks away heterogeneously on many or all of them. Occasionally and accidentally he might peck out one word or two out of a mass of desired ideas, which might be correctly spelled. Probabilities are, though, not knowing where correct keys are, his pecking would consist of jumbled letters. Typewriter is right; keys are right. He knows what he wants to write; thots are right; words are in his mind right. What is wrong, when sheet comes out a mass of jumbled letters which none can read? He can't connect his good intentions with good deeds well done because he doesn't know WHICH KEYS to use.

Chiropractic was in that position a few years ago. The backbone had twenty-six letters of the human alphabet. They were there to be adjusted. If proper work was done at proper place, proper spacing, in proper manner, books revealing health would be produced in human form. But the Chiropractor did not have knowledge of which, where, when, how, or why to adjust proper vertebra. NOT KNOWING where to adjust or when, why, or how, pecking away at twenty-six vertebrae more or less as he must, occasionally he MIGHT tick off an adjustment which would be correctly done. Probably, though, not knowing where or when vertebral subluxation was, pecking way would stumble out a jumble of backbone punches, doing little if any good and possibly doing harm. To research and secure KNOWLEDGE was to restore understanding to the Chiropractor; to make it possible for him TO SEE his letters and play them wisely.

Elimination of variables makes for establishment of constants, which creates clear-line thinking which is accurate thinking, which makes for efficiency, which creates accurate adjustment,

which is Chiropractic knowledge, and knowledge is health efficiency restored.

The higher we go in scientific research, the greater becomes the width, length, and depth of gulf between school and field. What can be done to make this gulf smaller?

1. Suppose we keep this work to ourselves, believe it injudicious to reveal what we have developed.

2. Suppose the field bemoan the existence of the gulf and, because there is a gulf, refuse to come to get our work.

What can be done to make this gulf smaller?

1. Suppose we teach as much as we can of our work developed.

2. Suppose the field in increasing quantities come here and get our work.

For the field to say, "We get tired going there, listening to one man preach about his scientific Clinic research, which we don't understand; what we want is something we DO understand, which we can take home and use" — it leaves us with two alternatives: Keep the NEW work to ourselves; not give it. Give OLD work again and again, teaching that which they already know. In this way, they will get that which they DO understand, which they can take home and use. In this way, they will not get tired of listening to something which they don't understand. This does not diminish that which WE do and keep to ourselves, neither does it hurt them by increasing their misunderstanding or diminishing their understanding. It may be that somewhere betwixt and between we can give a little of the new and a lot of the old and thus drag them up a bit each year. The serious objection to that is that while we drag them up that foot, we have gone another mile and the space continues to become even greater in width, length, and depth.

In our Clinic research, we are at work fifty-two weeks a year, any week being sufficient to keep the average Chiropractor busy each week of the fifty-two, trying to keep to the pace we set. The field man comes here one week out of fifty-two and expects to epitomize the "review" of fifty-two weeks in one week and know all about what it is all about.

It appears, from general reports we receive from the field, that Chiropractors at large hold the following general Pre-Lyceum and Lyceum opinions:

1. There is too much B. J. Palmer and Clinic research given us.
2. We don't get enough of the things WE need, we can take home with us and use.
3. This scientific research makes us feel our inferiorities when we return to our offices.
4. Lyceum has ceased to be a meeting OF Chiropractors, FOR Chiropractors, BY Chiropractors.
5. Lyceum has become a place where THE SCHOOL tells US too much, and WE tell IT too little.
6. There was a time when WE WERE the Lyceum; now the school is the Lyceum; we have been faded out.
7. We would like to reverse all this by:
 - a. permitting us to present and explain OUR problems so we can be helped out of them.
 - b. We want to feel we are the Lyceum.
 - c. We do not want so much Clinic research because it is of no value to use when we get back home.
 - d. We would like to have the school give us
 - old-time philosophy, given by B.J.
 - old-time technique drills, given by B.J.
 - old-time adjusting on cases, given by B.J.
 - modern interpretation on old-times; explanations and demonstrations.

Out of all this, the field seemingly holds the conviction that scientific research is of no advantage; therefore we should avoid discussion which makes them feel their inferiority complex, and/or avoid discussion which seemingly puts us in a superiority complex position. We should so discuss all complexes as to take their inferiority complexes and make them feel themselves into a superiority complex; and/or take our superiority complex into the silence, thereby humble ourselves into an inferiority complex, by comparison. They admit their inferiority complex, admit our superiority complex. The problem is how to reverse the known and admitted order, convince ourselves it is reversed, make it appear sincere that we believe the order is reversed, and make them believe that we believe they suffer with the superiority complex, we with the inferiority complex, when both of us know it is not so. Admitting their inferiority complex, the field have asked us to solve their problems they suffer with, by scientifically researching those problems and then present the evidence to

them, which we have admittedly done with credit to ourselves and satisfaction to them, after completion of which they now desire us to say nothing about it; ask us to remain silent about what they asked us to do, by asking us to not speak of their weakness or our strength, because to do so is to embarrass them within themselves by comparison with us; and it is this embarrassment they wish to avoid.

JUSTIFICATIONS

There is no justification for "another book," school, magazine, religion, church or clinic, unless there is a need. Today we have too many books, schools, magazines, religions, churches, and clinics — most of which duplicate each other, therefore fill no new need, have no excuse for existence. If a NEW book has something NEW which has not been said; if a school has a NEW principle or practice; if a church has a NEW Bible; if a magazine has a NEW process of thought; or if a clinic has a NEW service to render, THEN they justify reason for coming into being. We here believe, in establishing, building, and creating THE B. J. PALMER CHIROPRACTIC CLINIC, we have a NEW SERVICE to render — a service no other clinic now renders — viz., the laying of a NEW fundamental of scientific knowledge re the cause and cure of dis-ease, rendered in a complete, scientific, exacting manner, securing results better in worse cases, in quicker time, at less cost, than exists in any other.

Building this Clinic is not a desire of a few people to make a living; neither is it to develop a practice by dividing from or attracting that which others have by detracting it here. Building this Clinic is what our title implies — a deep understood purpose and plan supplying a need which is absent any other place.

There is no "business" so fraught with guess-work, errors, and innocent deceptions as that of treating sick with its rash promises of implied hopes of treating effects, cutting out pathologies, thinking such might get them well. The dangers are not those of malicious men but those of misdirected systems they blindly create and stumblingly follow. Medicine is what it is, not because its followers are insincere, suffering with delusions of grandeur, or

because their motives are questionable, but because of the myths, mysteries, and moth-eaten methods centuries in breeding which so fasten themselves into routine that none dare deviate.

Beginning with asking patients for symptoms which patient alone feels, which patient tells doctor, who repeats back to patient what patient told doctor, charging the case a fee for exchanging layman expressions of feeling into a jargon of Latin never-understood terms; with tapping and listening means and methods of observation of pathologies, hoping to be able on the outside of patient's body to know what is inside, doctor then separates and sorts, correlates and divides, multiplies and mixes his hopes and beliefs, and out of the jack-in-the-box education comes a compiled name called diagnosis. After diagnosis comes U. S. pharmacopoeia with its thousands of endorsed proper and ethical drug treatments, one or more of which will be sorted out from many; the deluge of drugs prescribed, any of which is an unknown quantity in any one person's body. Doctor follows name to book, book tells what he should prescribe. No symptoms or pathology, no name; no name, no book; no book, no treatment — diagnosis IS important to a medical man. Without it, nothing can follow, for there is its beginning. No wonder medicine is empirical, dogmatic, guess-work, a cut-and-dry, by-guess-and-by-God prayer to the God Jupiter that something works in devious and peculiar ways. If patient dies, it was "the will of God;" if he gets well, doctor takes credit.

The battle of searching for "cause of disease" has gone on for centuries and still goes relentlessly on. Effects alone are observed. One effect becomes "cause" of other effects. Effects trail effects, no primary cause ever being found. Microscope is developed. It finds microscopic life. All else previously failing, this opens new studies. "Germs cause disease" is a new battle cry. They seek the enemy in his tissue lairs. They find one, they tag him, announce his arrival. They build a chemical gun to kill him. Killing the germ, the patient dies cured. They make another old repudiation and another new announcement; this in time and place is denied. And so the scale runs up and down, year after year. Chemistry opens new fields. It finds new secretions, locates its organs. Out comes diet with vitamins, hormones, calories, etc. Then come dotes, antidotes; vaccines and anti-vaccines. Disease becomes animal, vegetable, and/or chemical, everlastingly seek-

ing, trailing, finding and denying. All because something outside is said to agree or disagree with something inside. Many causes, many diseases; many studies, many treatments — complexities pile up, until they are centuries top-heavy; overburdening schools, professors, libraries, practitioners; bewildered, amazed and living in a maze, none know where to turn, which way to go, to win the struggle for healthful existence.

In a large sense, all professions have steadfastly persisted in following same guides. They make same approach, pursue same paths, mix same names, apply same stimulative or inhibitive treatment methods, with modifications as to neck-tie, parting hair, color of shoes, all of which brings sick man out of the same small end of human life funnel — cases die; and when physicians are ready to shuffle off, all wonder what the struggle was all about.

We have been researching to get sickness out of mystery, to make health a simple study, to build all avenues of approach practical; eliminate guess-work and secure positive knowledge. This Clinic does NOT diagnose any case. We ascribe no name to complexed group of symptoms; neither do we go on "a fishing expedition" on the *outside*, to direct us to think about what we hope is inside, that we might correlate or separate them into accepted names to go to a book, to apply treatments of effects that follow that name. With cause *inside*, cure *inside*; with cause practical and cure equally so; with a known specific cause for all dis-ease and a like specific for adjustment; where the subluxation was, how, when; when, how, why, and where to adjust are all within reach of every man if willing to think, study, apply mental faculties in solving age-old riddles of human beings. It required, as a foundation, elimination of all variables and establishment of constants. As these have been done, man is an open book in sickness and health, life and death.

The work of this Clinic has progressed so that were a case to enter who uttered no word or sign, wrote no information, said or revealed nothing to us of that which was wrong with him, we could proceed along definite, positive, scientific lines, find information necessary to accurately and efficiently locate *cause* of his illness, whatever or wherever it was, adjust it, observe and study his recovery, ascertain facts as to his progress, and send him home

well. Proceeding along these lines, we need no symptoms or pathologies, neither would we make a diagnosis, which proves that the mysterious and unknown are not necessary to get sick people well. Precision X-rays would be secured without information from case; NCM-NCG readings would be secured without verbal cooperation; adjustments would be correctly given without case revealing anything to us; restoration of mental impulse supply would occur with him whether he wishes it mentally or not; daily NCM-NCG post-checks would be taken without a spoken word; precision X-ray comparative graphs would be taken and silence still prevail. To all this, without verbal communication between patient and doctor, the electroencephaloneuromentimpograph will establish a constant and variable graph wave pattern of before adjustment and after, and prove the restoration of brain to body nerve-energy flow graph wave patterns. Truly, science is climbing to its superior objective when this kind of foundation and stage of development have been reached.

That is the nature of our life's research. Because it is far-reaching, far ahead of the masses, it has not been understood, even often by many supposedly close who were in reality as far away as continents. Miles do not make distance, neither does elimination of distances make people close; but mental understanding makes people close, even tho across the ocean. Where misunderstanding exists, they are never together even tho they live in the same room year after year.

TWO MAJOR AND ONE MINOR ISSUES

After you have once SEEN this Clinic, there is little anyone can add, except that no institution can long exist or succeed without certain fundamental purposes and objectives. These we can give, for we know them best:

Two major issues

- a. medical
- b. Chiropractic

A. Medical contention is:

1. "patients who go to Chiropractor are 'psychological'," or

2. "there is nothing the matter with them;"
3. "nothing a Chiropractor could do would help a major pathology;"
4. "if patient gets well under hands of Chiropractor, it is A MATTER OF OPINION that patient was or was not sick;"
5. "patient EXPRESSES AN OPINION that he is or is not well;"
6. "Chiropractor BELIEVES patient was sick and is now well;"
7. "if a patient gets well, it is 'psychological'."

Medical men complain because "Chiropractors are NOT scientific."

In The B. J. Palmer Chiropractic Clinic, we go "scientific" with a vengeance.

Having proved that we ARE using their own devices AGAINST THEM, they whine because WE DO.

- B. The usual and average Chiropractor contends he must do MANY things, using many "moves", covering a LONG period of time, in MANY places, to STIMULATE or INHIBIT function, to alleviate, ameliorate, make patient better.

Following this program, he "adjusts" many places in many ways with many "moves", from head to hips, to heel, spending fifteen minutes to an hour every day, plus many adjuncts, many modalities, hoping he might ACCIDENTALLY do the right thing in the right way, and an ACCIDENT might happen to get patient well.

The B. J. Palmer Chiropractic Clinic was established to produce whatever the facts are:

1. TO PROVE BY MEDICAL MECHANICAL AUTOMATIC RECORDING INSTRUMENT GRAPHS that cases ARE sick, using same tests, same proof whereby a medical man proves existence of sickness, to prove that sickness exists in cases entering this Clinic.

2. To prove, after a certain period of time, a change HAS occurred, using same tests and same proofs to note the change.

3. To prove that diagnosis is fallacious and of no value; that it is not necessary to diagnose to correctly analyze, and that adjustment can be efficiently given without preceding it with diagnosis.

Meanwhile, between tests nothing has been used or given but simple abbreviated Chiropractic adjustment.

This breaks down "psychological" argument, and "they were not sick anyhow."

ON THE CHIROPRACTIC SIDE, the fundamental of this Clinic is to see HOW LITTLE we can do, at HOW FEW PLACES, HOW RARELY and HOW QUICKLY it can be done, to accomplish greatest change IN SHORTEST SPACE OF TIME, AT LEAST COST to case, and to know WHAT to do and WHY we do it, BEFORE doing it.

We seek not treatment of effects, symptoms, pathology, but the specific for the cause and the specific for its adjustment.

Disease, per se, with its medical treatment, has always been dogmatic and empirical, a theory, opinion, cut and try; little is known and much is hoped.

A few people buy tickets, go places, see things, come home, and prove they have seen with their own eyes, studied out-of-the-way places of the world. Others sit at home, rock in their chairs, read pictures, and listen to tales of others. Chiropractors take on same characteristics. A few secure equipment, do things, get facts, use them on cases, and prove they are up-to-the-minute in securing better, quicker results. Others sit at home, rock in their chairs, never attend Lyceums or State Conventions, occasionally read a trade magazine, and keep on punching backs as in years gone by. There are rocking chair travelers as well as rocking chair Chiropractors.

Chiropractic is a NEW principle and practice, originating a NEW result. A theory was believed; much that was fact was unknown. Until 1923, Chiropractic was beginning to die of dry rot; it was top-heavy with theory. The Spinograph and NCM introduced a new series of ideas which were assembled and reassembled into reconstructed older order of things, demanding a reshaping of much believed before. We made that development, then waited for our profession to catch up. A percentage did; a large percentage tried; many stood still, satisfied.

The farther and faster we went, the more ground we covered, the greater the reconstruction, the less who followed, the gulf between kept getting greater. At one time we here were the center of the group talking to all sides. As speed of development grew faster, it threw us out near the rim. As speed of development kept getting faster, and rocking chair Chiropractors kept on rocking, the farther it threw us away from the rim. Eventually we were forced by the nature of growth motion away from center of large group, until eventually we were hardly seen beyond rim, because of gulf between ourselves outside, and larger group inside sitting still. Difference in speed between hare and turtle creates distance in separation between turtle and hare. Distance between leader and follower creates a void between what average Chiropractor has, what he sees ahead that he wants and won't reach to get. To fill the void is seemingly impossible so he grabs at what is within easy reach — that which he best understands and can most efficiently use.

The P. S. C. as an institution of teaching could develop only so fast as the speed of teaching was determined by acceptance of student. In the profession of practicing field graduates, we found a general retrogression or slipping backwards. We could develop, for these, only so fast as they were able to absorb; which depended somewhat upon how far they had slipped backward, or had stood still, since graduation.

A man of today, thinking ahead, comes forth with a new principle, invention, development, or service for people of tomorrow. People of today look askance upon this new principle, invention, development, or service; possibly "don't believe it." That people of today "don't believe", does not change, amend, abridge, modify advanced value of NEW service. But the man with the idea stands alone; he MUST have support; he asks for it from those who "don't believe" because they are all he can appeal to or expect support from. There are few OF TODAY who "see" new ideas FOR TOMORROW. To one who knows, there are one thousand who believe. If he who knows wants to go ahead with the new idea, he must ask for encouragement, financial aid, numerical support from those who "don't believe".

Man who built trains asked for legislative, legal, financial, and numerical support from man who drove horses. Man who built

automobiles asked for understanding from man who rode trains. Man who built aeroplanes asked for encouragement from him who rode automobiles. It is notoriously a fact that man who understood train locomotion and its problems was last to believe in automobile, altho he should have been first to endorse newer and better methods of transportation. Trains fought busses. Busses gained in volume and took business from trains. Finally trains went into bus business. Trains fought aeroplanes. Aeroplanes gained in volume and took business from trains. Finally, trains went into partnership with aeroplanes. Street cars fought "jitney" busses in cities. Today it is getting rare to see electric street cars. As new superseded service over old, old adopted new or went out of business. To fight improvement is to anger feelings against it and persons promoting it. Upon its adoption, reverse becomes true — promoter and object are praised as worthy.

Having established themselves, having ideas accepted and adopted as formal and correct line of duty, train men were in power when automobiles appeared. To oppose automobile seemed proper duty of train men. They did, without mercy, showing temper, because they had power of press, clergy, legislation, and public opinion behind them. This same sense of "duty" trains itself thru every advanced step. Having established themselves, having had ideas accepted and adopted as formal and correct line of duty, older and former type of Chiropractor were in power when scientific Chiropractor began coming to the fore. For older to oppose newer seemed proper and correct duty of Chiropractors. They did, without mercy, for they had power of adopted legislation, state boards, and an already builded public opinion behind them. One State Board recently said, to a Specific modern scientific Chiropractor: "You must pass an examination in the 25-year-old meric system or you can't take this Board." Thus do Chiropractic Examining Boards stifle progress, hold back a better service.

When Chiropractic was conceived, in 1895, it had a NEW principle, a NEW practice, attaining a NEW result. The first people who should have grasped its understanding, come to its rescue, adopt and adapt it, aiding it over rough ground, should have been physicians who were obviously floundering with medicine, and who were directly concerned with public health. On

the reverse, like train men, they battled it legally, legislatively, professionally, socially, financially, etc. As Chiropractic lived and flourished, it concerned newer and better, more practical, more simple, more scientific methods of bettering its service to worse cases, getting them well quicker. The first people who should have aided and encouraged every Chiropractic step upward should have been Chiropractors, for they of all people should know its history, fighting for recognition. On the reverse, they fought it, struggled against it, checked its every effort to improve upon itself to grow better and more sound in application. It is notoriously a fact that the Chiropractor (who was supposed to know Chiropractic) should be first and foremost opposer of every newer and better method in Chiropractic. HE HAS EVER BEEN THE LAST TO GIVE WAY, AND ONLY WHEN FORCED.

NOW, in the formulation of The B. J. Palmer Chiropractic Clinic, an institution of practice upon cases direct, wherein there exists no intermediate third party to be considered, we develop and put to use direct upon sick, as fast as we desire — there being no retrogression to perk up, no slipping to check, no student to teach. Now we release former existing mental brakes upon progress, and go! Whether the profession follows, is up to individual members of the profession.

The profession at large, including the rocking chair Chiropractor, has pointed with pride to "the scientific strides of Chiropractic", realizing what we said was true, little realizing he was no part or parcel in it or of it. He has the idea that if he could show how scientific "the profession" has gone, that this will by verbal reflection put him more scientific in mind of listeners, even tho they see him in his rocking chair at bottom of hill. Peculiar what peculiar ideas peculiar people get! Majority of Chiropractors regarded Chiropractic scientific development with just pride, realizing that the profession consisted largely of "sit-down rocking chair strikers" against accepting progress or using it in THEIR offices. Out of 82,000 visitors (1951) who inspected The B. J. Palmer Chiropractic Clinic laboratories and their scientific research, twenty-five per cent were Chiropractors who came, saw, admired with justifiable pride, some of whom were proud to be "a party to it all"; others went home, continued to sit and remain

rocking chair Chiropractors. When the cry went up in the Michigan Legislature (1937) that "Chiropractic was not scientific", Chiropractors in Michigan pointed to The P. S. C. as proof that it is. And to prove it, Committees of the Legislature were brot here, that they might see for themselves. Yet many of our professional members who pointed with pride, urged visitation of these Committees, went home after the fight was over, returned to their rocking chair practices as before.

Man, in his aim, effort, and desire to do things and accomplish better means and methods, occasionally "stumbles by accident" into doing the thing. Even tho "doing the thing" is still an "accident" the laws and principles are still as unknown as in the beginning. More than likely he could not duplicate the act. This raises the question: "Is it better to do a thing without knowing how or why, or better fail and know how and why you failed? Is KNOWING a vital factor necessary in ultimate solution of things?"

Chiropractors practicing in field are prone to severely criticize thots and actions of scientific work done in this Clinic. They say, "This isn't true; that can't be done; this method is better, or that is worse;" or say, "Dr. Palmer is wrong in this conclusion, or in stating this as a fact", etc. It may be true that everything we do may be wrong; it may totally fail to get sick people well; it might and could easily be all they say. But this much must also be said: WHAT WE DO IS BASED UPON AN ATTEMPT TO KNOW WHEREOF WE THINK, SPEAK, PRINT, AND ACT. We seek KNOWLEDGE even tho it fail. Can as much be said for them, even tho EVERYTHING THEY THINK, SPEAK, PRINT, AND ACT GETS EVERY PATIENT WELL? It inevitably produces these questions: Is it better TO KNOW WHY ONE FAILS, or is it better to be ignorant of why one succeeds? If one KNOWS WHY he fails, isn't he more likely to eventually tap the root of his failure and succeed in even a greater way than he who succeeds and knows not why or how?

American Telephone and Telegraph, Westinghouse, General Electric, Radio Corporation of America, Ford of Detroit, are names to conjure with. Each has fully and thoroly equipped laboratories; instruments of all kinds and characters. In these they do all necessary and many unnecessary experiments, work-

ing on and solving problems galore. All are necessary to accomplish things they are vitally concerned with manufacturing; and multitudes that are foreign to anything they sell. Once this work is delved into, they pass on information for public consumption and any who will, can utilize it. In a big way they are performing a public service at private expense.

Each organization has many subsidiaries, agencies, scattered here and there. None has need for equipment comparative to what mother plant has and uses. Some equipment is manufactured by them and passed down to agencies. Most equipment never gets outside those laboratories. This is as it should be. But, — and this is the issue of great importance — they become public benefactors when they gain knowledge and pass it on to any who need and can use it. It is theirs for the asking. We have gone to those laboratories and asked for information AND RECEIVED IT without hesitation or that of compensation.

In the same sense, it is fitting and proper that The Palmer School of Chiropractic SHOULD BE the mother corporation to all Chiropractors, regardless of school. It is proper we here should equip laboratories, research our problems, ascertain facts, and pass them on to Chiropractors everywhere, for asking, coming and getting. It is not fitting or necessary that you Chiropractors everywhere should think of or find need for elaborate equipment such as ours. Neither could you use it if you had it. We here solve YOUR problems and pass those solutions on to you. It is then yours to accept or reject as you see or feel the need of that information. It is not our position to suggest, and much less urge you to its use. Maybe it wouldn't fit your problem at all. Maybe it would. That is for YOU to decide.

We realize our work here is a professional difference of opinion. It occasionally is our pleasure to have an evening where we can and do discuss these problems and their solutions with some who have been violent critics of the nature of our work. When we get into vital issues, where, why, how, when, etc., we drive the critic into dark corners and up many blind alleys and he becomes hopelessly lost in a few minutes. His reaction then is to retaliate with: "That's just the trouble with you, nobody can argue anything with you"; picks up his hat and is gone. Is that the attitude of an honest man seeking solutions to problems of men? At least,

in our defense, this much can be said: we are ready and willing to discuss scientific facts as we know them. On the side of the critic, we rarely find him willing to do this. Is it because he has NO scientific facts to discuss and his opinions are theories and nothing more?

The general professional cry has been "make Chiropractic scientific". We have and we are. Today the professional cry is, "You travel so fast we can with difficulty keep up with you, if at all". There was a time when we moved, halted, let others catch up; then we took another step. Now in our research Clinic we travel without regard to whether the profession catches up or not. Our pace now is consistent, developing as fast as our minds can conceive, our laboratories and factories can execute. If the profession catches up, okeh; but all of it is in our Clinic in use all the time on cases who want it, need it, who can't get it anywhere else.

THE ELECTROENCEPHALONEUROMENTIMPO- GRAPH AND ITS LABORATORIES AS BUILT, INSTALLED, EQUIPPED, AND USED IN THE B. J. PALMER CHIROPRACTIC CLINIC, DAVENPORT, IOWA, U. S. A.

This room is 15' x 40' with a 16' ceiling. In it are two ideal and perfect shielded and grounded booths, one of which is practically a room, 11½' x 20½' with a 9' ceiling. The other is 6' x 8' with 9' ceiling.

The larger shielded and grounded room has iron sides, completely covered on the north; iron sides up 5' from the floor on west, south, and east sides. An open slot 18" wide, just above, surrounds these three sides. From there up to ceiling is iron again. The floor is covered with iron, as is likewise the ceiling. Interior lighting comes from lamp shades ABOVE the iron ceiling, shining thru openings made in iron ceiling. Light passes thru the copper screen shielding below it, which surrounds the globes.

The room is entirely and completely grounded with fine, 1/16" mesh copper screen, which covers all side walls, ceiling, and

floor; all being soldered together into one solid copper screen room. The door is iron frame metal, and contacts iron frame surrounding it. It is also covered with copper screen mesh, and contacts copper screen mesh on all sides of the door, when closed.

All electrical feed outlets are fed thru iron frame OUTSIDE the frame, only the outlets passing thru and stopping just inside the iron sheeting and outside the copper screen.

We keep all electrical feed lines out of the rooms, except those necessary to feed our apparatus. All such feed wires are completely shielded from the moment they contact the baseboard outlets. There are 3,300 pounds, or over 1½ tons of iron in the walls of the larger booth.

Upon receiving and working with electroencephaloneuromentimpograph No. 1, we found it took 1,000 watts of electrical current to operate; it generated a great quantity of electrical discharge from its 68 tubes, from motor running graph paper, motor running motion picture camera, lead-in feed lines, inter-communicating feed lines from outside of its two bays, from one bay to other, from bay to patient, etc. Although instrument is shielded and each individual section is shielded by casing, nevertheless leakage of electricity into room air was so great it was impossible to place same in original booth and work with any non-external-energy-proof constant. To accomplish our objective, we built a second, separate, completely shielded and grounded booth 6' x 8', placed alongside larger booth. Smaller booth was builded like larger one. North side was completely iron-surfaced; west side was all iron-covered; east side had a superior slot same height as in larger booth for means of verbal communication between larger booth on its west side, in which patient was placed, and smaller booth in which electroencephaloneuromentimpograph was placed; south side had two iron-framed doors with plate glass, that visitors might see contents; and on inside of north side a larger mirror is placed, that visitors may look through plate glass doors on south side, see rear of electroencephaloneuromentimpograph, and by way of mirrors see front of working side of instrument. Ceiling was iron-covered, containing three openings — two for lights and one for fan for ventilation. Two lights and fan were superior to ceiling and were not in room proper. Underneath lights and fan was copper shielding as in larger booth.

Close to bottom of west, east, and south iron-panel sidewalls are narrow slots for intake of air, expelled via fan on ceiling. Entire inside, including ceiling and floor, under lights and fan over ceiling, over plate glass in doors, was covered with copper mosquito wire for purpose of grounding. In this booth were used 550 pounds of iron sheeting and iron frames. Instrument was grounded in frame of wall. Smaller booth was grounded to larger booth. In this booth was placed entire special equipment, including camera, etc. A 1½-inch inter-communicating hole was bored between east sidewall of smaller booth to and thru west sidewall of larger booth, thru which we fed our patient-to-instrument contact lines. This being fourth and fifth such grounded and shielded booths we built for our Clinic, we have incorporated protective and refining features not incorporated in others. In all others, iron was added after booths were built. In this one, iron was the frame, after which all else was added.

A MECHANICAL AND ELECTRICAL DESCRIPTION OF THE ELECTROENCEPHALONEUROMEN- TIMOGRAPH NO. 1 AND 2

This word and the instrument it represents has to do with brain and nerve impulse research. The instruments have been specially built to our specifications for our research. These are the only ones of their kind in the world. They are installed in special research laboratories, shielded and grounded, bringing the total cost of this one department of the Clinic to date to a little more than \$50,000.00.

These instruments prove or disprove Chiropractic; prove or disprove whether the Specific causative vertebra IS the atlas or some other vertebra. We have settled this question once and for all, in a precise and scientific manner. The work has covered thousands of cases over a period of years. Now that conclusions are reached, the profession SHOULD accept these scientific facts as they stand. If atlas is proved to be causative vertebra when subluxated, the profession SHOULD accept that fact and quit fooling around with the rest of the spine. BUT WILL THEY?

The electroencephaloneuromentiograph Nos. 1 and 2 measure and record minute degrees of mental impulse in five places:

1. at source, the brain
2. at subluxation
3. at point where nerve emits from spine below subluxation
4. at any point between periphery and spinal exit
5. at periphery.

Recordings are made before adjustment, at periods after, and at subsequent times, showing whether mental impulse has been restored at these various points and in what degree. It will not have anything to do with by-product of interference (heat) but with mental impulse flow direct.

This is one phase of many tests and researches which we are conducting, steadily compiling statistics and proof. We are busy building and protecting Chiropractic for the future. If you could see the research program we have lined up for next few years, you would agree we have plenty to do.

Many things ARE going on behind scenes which you in field do not often hear about. Much work is being done quietly, persistently, and conscientiously to safeguard Chiropractic for posterity. Whether Chiropractors want to cooperate and remain Chiropractors in fact, is entirely up to them. So far as the MAJORITY of Chiropractors are concerned, it is fortunate that this scientific work does not depend upon them, but is independent of them. By time average Chiropractor has sense enough to see that we are fighting to preserve Chiropractic, it would be lost to the medical men. Already medical research is going into this question of brain research in a big way. There are 168 universities and 1620 individuals in the world doing this work. And how many Chiropractors? How many Chiropractic schools, institutions, or clinics? One — The B. J. Palmer Chiropractic Clinic. This work has been going on for years.

The electroencephaloneuromentiograph is a very delicate instrument which detects, amplifies, and records flowing and active mental impulses in a living body. The mental impulse registers five-millionths of a volt or less, of current. It is then amplified four hundred trillion times. It can then be converted into sight and/or sound waves thru a series of five (in No. 1 or eight in No. 2) oscillographs, which can be photo-

graphed on motor film for permanent record, as well as recorded on five or eight recording tape records. The amplification is stepped-up thru a series of sixty-eight tubes. ELECTRO — electrical; ENCEPHALO — brain; NEURO — nerve; MENT — mental; IMP — impulse; GRAPH — record.

The apparatus of instrument No. 1 uses twenty-five type 6-c-6 tubes and ten 6-L-6 tubes. The twenty-five 6-c-6 Pentode tubes in the high sensitivity amplifier have an amplification factor of 1,500 and ten 6-L-6 beam power amplifier tubes in the power amplifier (a pair of which mounted plate to plate have a power output of 34,000 milliwatts) would give a total available voltage gain of around twenty million. Power gain is approximately the square of this, or four hundred trillion. This will give approximately ten times the sensitivity and one hundred times the signal to noise ratio now accepted as standard and used in this type of equipment. In this way, ample reserve is assured for any special research.

Comparison of tremendous power output of tubes used in power amplifier can be made when you consider that the type of power amplifier tube used in radio sets has a power output of 1,600 milliwatts.

Apparatus of instrument No. 1 is also equipped with five special Du Mont cathode ray tubes in oscillograph circuit as well as a number of rectifier and special purpose tubes in sweep circuit.

Two very important advantages of this electroencephaloneuromentimpograph are two electric clocks built in. One is ahead of five cathode ray oscillographs, for moving film motion picture purposes of recording time, which automatically registers itself on sound track or film, clicking 120 flashes per second. Second clock is ahead of ink-oscillograph recorder which gives automatic one-second interval marks, feeding itself in red ink as a separate channel between blue ink five channels recording graph patterns, making it possible to count intervals of mental impulse nerve force energy flows subject to measurement as to rapidity, etc. It is not a clock in that it records hours and minutes on a face dial, but it is a clock in that it records second-intervals where timing recording is essential.

This research electroencephaloneuromentimpograph is a searching, amplifying, and recording system designed to detect,

amplify, and record minute variations in flowing nerve force energy present in various portions and structures of living human bodies. It is particularly intended, as its name implies, to research out, detect, amplify, and record flowing nerve energy of brain, from brain to body and back again to brain. Its construction permits, also, researching amplifying and recording comparisons of one portion with another, brain voltages and/or body energy functions. These five- or eight-channel instruments permit energy comparisons simultaneously from five or eight different pairs of exploratory electrode pick-ups at same time, so that relations between five or eight groups of energy-actions may be observed and thereby establish a complete picture of body-electrical potentials activity of a human organism as a whole. It has many local adaptations such as seeking, amplifying, and recording stethograms; sounds of auscultation; sounds of heart beats; crepitation of joints; borborygmus; organs of special sense, such as eye and ear, etc.

These research electroencephaloneuromentimpographs comprise ten or sixteen exploratory electrode pick-ups; five or eight simultaneous amplifying systems. Instrument No. 1 has five cathode ray oscillographs with motion picture camera attached to record them; five ink-writing records, and a loud speaker which reproduces for auditory detection of variations in function corresponding to radio frequencies which lie within range perceptible to human ear. With exception of loud speaker, all is provided in quintuplicate.

DETAILS OF CONSTRUCTION

Each of the amplifiers is divided into two sections. The first is the input, or voltage amplifier, and is mounted in first bay. This amplifier is a resistance capacity coupled instrument of three stages in cascade, and is battery-operated. First stage is balanced, and is isolated from ground. Second stage is simple, and third stage includes face shifting mechanism, which allows it to operate in push-pull. The maximum gain possible with amplifier amounts to about twenty million times in voltage. Time constant is adjustable, so that frequencies at lower end of spectrum may be eliminated, that small waves of higher frequency may be per-

ceived even when they are super-imposed on larger waves of lower frequency. Amplifiers may be calibrated at any gain setting.

These amplifiers drive directly the cathode ray oscillographs, and provide driving voltage for current amplifiers, which together with cathode rays are mounted in second bay. These current amplifiers drive ink-writing oscillographs, and first one operates loud speaker. All equipment in second bay is operated from 15-volt, 60-cycle power lines. Fifth channel receives signals from an electric clock, which punctuates its records at intervals of one second. Current amplifiers are directly coupled to ink recorder. In output of each is a potentiometer which controls direct current bias present in record coils, and an electro-magnetic shunt which reduces output amplitude and controls damping.

Cathode ray oscillographs are each independently adjustable for focus and brilliance of spot. They are provided with sweep circuit which allows repetitive waves to be visualized as standing images on tube faces. Sweep circuit draws spots from left to right, at a constant speed, and allows them to snap back suddenly to initial position. Voltages from amplifiers are applied to deflect spots in vertical plane. Sweep circuit may be disconnected and amplifier potentials used to deflect spots horizontally so that continuous oscillograms may be made with motion picture camera, the film of which moves in a vertical direction. A small fluorescent lamp, which gives brief light flashes at rate of 60 per second, is mounted at edge of first oscillograph tube. Light from this entering camera gives a row of dots at edge of film, spaces exactly one-sixteenth of a second apart, so that time relations of recorded energy flow may be known with accuracy.

Ink-writing recorders in instrument No. 1 utilize five moving coil oscillographs, which move siphon pens transversely upon moving paper tape. Inertia of ink-writing recorder permits use of this instrument for frequencies below sixty cycles per second. Cathode ray oscillograph, on other hand, has practically no inertia, and will operate at all frequencies. Ink-writer, therefore, is used only for recorder comparisons and for such other functional variations as are seen with cathode ray to contain no high frequencies of essential importance. Comparisons of records obtained by both means indicate which method is preferable.

Among the rest of the equipment is a sensitive microphone, hooked up to an amplifying system which amplifies heart-beats two million times. This makes it possible for entire classes TO HEAR and study the human heart of one person as it beats. In addition TO HEARING, this same equipment contains a nine-inch RCA oscillograph. This is the ultimate in oscillographs, incorporates the latest in design and the finest in physical construction and electrical design which it was possible for RCA engineers to conceive and build. It was built with an eye to performance only. For laboratory, university testing and research departments, this oscillograph has the highest anode voltage resulting in the brightest spot of any now on the market. It is ideal for all kinds of photography and has the ability to give full-scale deflection without the slightest trace of overloading at any frequency. It will give distortionless operation at the lowest frequency that can be produced — will actually show, distortionless, a ten-cycle square wave. One of the outstanding features of this oscillograph is its nine-inch cathode ray tube, the largest of its kind ever produced by an American manufacturer.

The following specifications speak for themselves:

Power Supply — 110-12 volts, 50-60 cycles, 340 watts.

Oscilloscope — 9 inches, electrostatic.

Deflection Frequency Range — 10-30,000 cycles per second.

Deflection Sensitivity — Max. .3 volt per inch

7,000 ohms at 300,000 cycles

Maximum d.c. insulation, 250 volts

Maximum a.c. 700 volts, R.M.S.

Timing Axis Frequency Range — 5 to 50,000 cycles.

Tube Complement —

1 RCA 914	1 RCA 879	2 RCA 6L7
2 RCA 866	1 RCA 885	2 RCA 6J7
2 RCA 874	1 RCA 6C6	2 RCA 6L6

Physical Specifications —

Weight, 195 pounds.

With this equipment the student not only can HEAR but can SEE what he hears. It also makes it possible for us in our research work to accomplish ultimate objectives with the last word in perfection in oscillographs.

In our original research laboratory set-up, picking up by-products of sound of hearts and lungs and amplifying them in sound and sight, we started with a one-inch oscillograph. Finding it limited in accuracy and in ability of interpretation, we went to a three-inch, and finally to the last word in perfection and efficiency — a nine-inch oscillograph. The nine-inch oscillograph amplified sight to such an extensive form that it proved existence of a variable, viz., AC current fed into it direct, passed thru sound amplifier, from there passed thru nine-inch oscillograph, produced not a straight line constant which we desired and had a right to demand as a fundamental from which to study body variables, but an AC undulating amplified electrical current overriding it as a variable across its screen. To leave the wavy AC wave pattern in (which would be a constant of itself if that was what we wanted) and in addition try to secure a wave pattern of nerve force current constant, would be like trying to superimpose a heart-sound pattern on top of an AC wavy wave pattern, like messing up two sounds to try and find what one sounds like, like trying to listen to one person with two people speaking with equal volume to third person, like heterodyning sounds when two stations' wave lengths overlap in a radio and produce a squeal. The super-imposing, messing, dual-speaking, heterodyning of two sounds to gain constant of one would be to hope to see a constant with a variable weaving back and forth into picture blurring perfect and accurate understanding.

To eliminate the AC undulating wavy pattern, was a necessity. It was accomplished by picking up 110 AC electrical current outside shielded and grounded booth, feeding it by and thru an automatic relay switch to feed batteries which converted it to DC current, passing it thru filters, from which it was now fed into amplification of sound and from there was fed as a DC current into oscillograph for a straight-line constant wave pattern as our fundamental to begin our studies. From then on, any sound or vibration which was fed into amplified form for sight was a constant and any human deviations then portrayed were correctly interpreted.

The purpose of the specially-gearred slowed-down motion picture Victor camera is to make it possible to each week take motion picture films of the oscillograph wave patterns of cases,

identifying them each time and each week as taken, and thus piecing together the many of any one case taken, running them in our photograph studio laboratory and thus SEEING changes made from week to week in the case. This is but another one of the various possible tests taken of cases to prove correction values of the subject matter as tested in this manner.

The Chiropractic premise is:

Concussion of forces produces a vertebral subluxation

Vertebral subluxation occludes an opening thru which nerves or spinal cord pass

Occlusion produces pressure, directly or indirectly upon nerves or spinal cord

Pressure offers interference to uninterrupted transmission of mental impulse supply between brain and body

Interference produces resistance to a full quota supply of nerve force

Resistance to transmission of energy thru a physical medium creates additional heat at point of resistance

Additional heat is read with an NCM.

The vertebral adjustment given by a Chiropractor reverses this process and permits health to be restored. This IS the fundamental upon which all Chiropractic rests. That principle and practice is either 100 per cent right or 100 per cent wrong. Is it sound; is it true in fact, both in creation of dis-ease and in restoration of health? Many of us think it is; think we have been proving it CLINICALLY for years. Many others ridicule the idea, call it fake, fraud, imposition on the credulous sick, etc. Many amongst us who call themselves "chiropractors" don't believe it, get away from it, mix and absorb other contradictory principles and practices. It appears that to get sick people well, with its exclusive use, is not sufficient to convince many amongst us, or to break down the barriers of other professions. THEY DEMAND LABORATORY PROOF!

These are things we have set out to prove in this Clinic, by the use of scientific instruments, with scientific means, in a scientific manner; proofs which are the last word and will be incontrovertible.

To that end, the Research Laboratory is completely equipped with following:

1. A 2-million-time amplification of sound
2. A 9" oscillograph for reproduction of wave patterns
3. A Victor recording motion picture camera, equipped with 1.5 lens especially geared down to 4 frames per second.
4. A vibration pick-up method converted to sight patterns.
5. A motion picture camera to record sight wave patterns for reproduction and subsequent comparisons with later wave patterns of same case.
6. Adult and juvenile neurocalometers
7. A floor and ambulance model neurotempometer
8. A neurocalograph
9. A lateral or side-posture adjusting table.
10. A Keeler Polygraph.
11. All housed in two completely shielded and grounded booths 100 per cent proof against any external interference or invasion of energies.
12. Two electroencephaloneuromentimpographs complete, housed in the second booth but connected to and a part of our research laboratory equipment, more fully described in previous pages.

The above is major equipment. Other instruments will be found from time to time, on tests. Other methods or means will be found under investigation.

ESTABLISHING A CONSTANT POINT OF CONTACT FOR MEASURING BRAIN IMPULSES WITH THE ELECTROENCEPHALONEUROMENTIMPOGRAPH

In measuring brain pattern of individual cases in Clinic, head contacts are being taken at Superior Meric points according to which way patient's head is turned, part of head that exposes most surface, and contour of patient's skull. Some patients turn head to right, some to left, and others straight forward.

This does not allow any basis for comparison between brain potentials and strength of signal received.

Occiput could be point of contact in ALL cases, because from occipital region mass of brain fibers converge and are formed into spinal cord which supplies entire body. It is here the greatest potential could be recorded. Present table does not allow comfortable lying posture with head straight forward. To remedy this, a split headpiece should be added — one in which patient can lie comfortably, face forward, and support given to head on sides rather than on nose or forehead. Head position seems to be producer of more discomfort than anything else. Such a headpiece would resemble that used on old meric adjusting tables.

Straightforward head posture would allow better atlas contact. As cases lie with head to one side or other, one transverse contact is made by gravity. Some necks are too thin or too corpulent to establish a non-slipping transverse contact or actual transverse contact is not possible by nature of case's neck. Also when patient has head turned to one side or other, a posterior arch contact is necessary rather than an opposite contact.

All of this, at a cost of more than \$50,000, has been installed, that we might accurately, efficiently, and scientifically prove or disprove location of right and wrong subluxations, adjust at right or wrong times, pre-check and be certain or uncertain that it has been accurately and efficiently located and corrected, or incorrectly adjusted at time of its existence; and to prove or disprove that subluxation DID or DID NOT impede flow of nerve-force mental-impulse current between brain and body, and that adjustment given at that place under those conditions DID or DID NOT restore that transmission TO THUS PROVE OR DISPROVE THAT METHODS UNDER WHICH WE MAKE CONCLUSIONS ARE OR ARE NOT SOUND AND ARE TRUE OR UNTRUE TO FACTS; thus, giving medical men MORE ammunition against us, or taking it all away from them; taking all that Chiropractors say either into or out of the realm of fancy, theory, or opinion of men.

SHIELDED AND GROUNDED LABORATORIES — WHY?

In man flows a minute nerve-energy-mental-impulse flow. If there were NO subluxation; if the flow between brain and body

WERE uninterrupted, then any measurement taken of its generation, flow, or expression, would be a constant.

Every living person HAS a subluxation interfering with and interrupting that flow; hence no living person HAS a constant in flow and expression. His generation IS a constant.

We desire to measure THE BY-PRODUCT of that flow and expression. To do so is to measure a VARIABLE by-product to the extent of the interference and interruption of that nerve-energy-mental-impulse-flow.

External to man are man-made greater quantities of energy, such as Hertzian, radio, electrical waves, as well as the natural magnetic North-to-South-Pole magnetic waves.

External energy waves bombard man, penetrate his skin-insulation, and change his internal pathological variables to external-internal variables, making it next to impossible to secure a constant by-product reading with any accuracy.

You have driven on the highway with car radio on and you noted interference between radio waves and electrical waves from nearby high transmission lines. You have noticed how radio waves were dampened as you passed under high tension lines that crossed the road. You have listened to radio and heard a pronounced "wire surge." You have been annoyed by static. Interference between radio waves and electrical waves is caused by two energy waves in the air — radio and leakage of electricity from power lines. They were heterodyning each other. Radio was auditioning both. Because of leakage of electricity from power lines, companies build boosters every so often to build up the low level caused by leakage to rebuild to a normal level and thus supersede one over the other, so you could tune in the center of one without tuning in the center level of the other.

You have held conversation over telephone and heard another conversation leaking into your ear. This is "cross-wire" talk caused by leakage of one conversation over the wire you were conversing on. These are pickups from other currents different from the ones you want, caused by extraneous energies flying wild in atmosphere or caused by sun-spots, etc. These are samples of how one variable energy invades the constant field of another flow of energy, distorts it, and makes it unpleasant to listen to; creates a variable of sound. The external electrical

variables, being stronger than the radio or conversation constant, distort sound.

This is what happens outside of man, coming to and invading the inside of man, except that man meets FOUR outside kinds of waves which distort his internal fifth current constant which you are trying to read as a constant with your NCM.

Electrical engineers have somewhat reduced leakage of high-tension lines, have reduced external variables which interfere with radio reception, have crossed their carrier telephone lines to prevent cross-wire talk, have grounded and shielded radio receiving sets so that radio today presents a constant. They have somewhat obviated static and some day hope to ground it out entirely. So, what radio engineers have done and are doing, is exactly what we have done and are doing to read the constant on human mental impulse flow.

There is interference IN THE AIR between electricity and radio but we are not aware of it until we have some sufficiently sensitive method of measuring one with the other, such as picking up radio waves and then noting that interference. Same is true with mental impulse current. We do not know it is being interfered with until we have a sensitive method of measuring it and then noting interferences from other energies. By contrasting the checks, in the open and in a shielded and grounded booth, we note differences which prove interferences.

Tests have been made with Neurocalograph to determine amount of electrical potential at input to potentiometer in NCM shielded and grounded booth. This amounted to only six microvolts. Due to the thermo-couple circuit used, none of this energy passes into patient and therefore does not influence reading constant in case.

To secure an internal-constant by-product accurate reading, it becomes necessary to EXCLUDE EXTERNAL energies.

We therefore shield and ground all laboratories used to secure internal readings of all by-products of nerve-energy mental-impulse flow. We thus secure the internal-constant variable-constant.

This refers to polygraph
neurocalometer
sphygmomanometer

heartometer
electrocardiograph
electrocardiophon
audiocardiograph
electroencephaloneuromentimpograph

From day to day, we get readings that are comparable to each other, of the same person; and whatever changes OCCUR WITHIN THAT PERSON are the variable-constant to that person, exclusive of any and all changes EXTERNAL TO THAT PERSON which would otherwise influence and change that which we aim to secure.

Readings under such conditions secure a greater accuracy of readings, reduce frequency of break readings, increase intervals between false adjustments, secure greater frequency of correct adjustments, reduce time of stay of our cases, get them well quicker of worse conditions, and thus reduce the cost to them, permitting us to charge a higher weekly fee for securing results in "problem" cases that would die at the hands of others with less efficient methods.

By variables, in NCM readings, the following are examples of tests made. To establish tests of this kind, they must be made in four ways:

- a. patient read by hand with NCM
- b. patient read with neurocalograph, with neurotempometer
- c. patient read by hand with NCM outside of booth
- d. patient read with neurocalograph and neurotempometer inside of booth.

The difference between "a" and "b" is the difference between a constant and a variable of reading; the difference between "c" and "d" is the difference between an internal mental impulse constant and external energetic variables.

- e. Have a patient lie on a table, head to east and feet to west, or vice-versa — out in an open room — and you can get two kinds of readings according to whether you read with a NCM-hand-graph or whether it is taken with a neurotempometer-neurocalograph.
- f. Have same case lie on table, with head to north or south, out in an open room, and you will get two still different

readings according to whether you read with a NCM-hand-graph or whether it is taken with a neurotempometer-neurocalograph.

What is the difference whether head is north or east? In one instance mental impulse flow is north and south, and flows WITH polarity of magnetic North and South Pole waves; in other, it is flowing cross-wise of that wave flow. Position of head does NOT affect heat element you read with NCM, but that position DOES affect the mental impulse flow resistance upon which heat is based.

- g. Take same patient, lay him on table with head either east or west, north or south, IN A SHIELDED ROOM against magnetic North and South Pole waves, and it makes no difference because you have shielded out those external energy variables, permitting you then to read an internal constant which is always the same.

The following item appeared in a recent issue of the Detroit-Times:

"The manager of a steel plant told a reporter: 'You never store an over-supply of steel because it gets stale. Steel must be stored WITH THE GRAIN RUNNING NORTH AND SOUTH. If they don't like the way the grain runs, they change it . . . by rolling. A PRECISION AXLE WILL WARP OUT OF SHAPE IF LAID EAST TO WEST . . . due to the magnetic pull.'"

"At first glance, this would appear to be one of those fantastic tales about steel published from time to time in the press, but upon closer examination, the statements prove to be popular conceptions of known metallurgical phenomena.

"Steels, especially cold-rolled sheets, do 'get stale' or more correctly, age harden, making it difficult to fabricate properly in presses. The tendency of low-carbon material which has been skin passed to age harden in as short a time as two weeks, is well known among metallurgists, some lots of steel increasing in hardness from 40 Rockwell C to as much as 50-53 in this period of time. Instructions sent to customers on shipments of cold-rolled sheets frequently advise fabrication within 14 days.

"The magnetic effect is less well known and understood. Certainly it is not essential from a practical standpoint to store steel 'with the grain running north and south'. Metallurgists agree that in some localities a pronounced magnetic effect on the grain in a low-carbon steel is felt and it is probably possible that precision parts might warp out of shape in these localities. By and large, however, it is doubtful whether there need be much concern over this magnetic effect, although some metallurgists are of the opinion the subject is a ripe one for investigation."

(From magazine titled, "STEEL", December 5, 1938)

The same principle works with Hertzian, electrical, magnetic South and North Pole, and radio waves. In one instance external variables are in, and in the other they are out. Adjustments are given based on readings made, whether by hand or neurotempometer-neurocalograph; on breaks existing, which can be increased or decreased, present or absent, according to variables which change them or constants which make them reliable.

LISTENING-IN ON NERVES—SEEKING AND RE- SEARCHING ENERGY—AND WHAT THEY DELIVER BY WAY OF INFORMATION WHEN CORRECTLY INTERPRETED

When we entered this field of scientific research to know something and as much about flowing nerve-force energy as was possible, we did so climbing an imaginary ladder.

1st. Our first step was to secure and use an Ellis Micro-Dynameter, thinking it would give us facts re flow of nerve energy that could not be secured any other way. The results of our research along this line are contained in another book (Vol. XX. Palmer) under an analysis of the shortcomings of the pick-up system of that method.

2nd. We then decided to pick up a BY-PRODUCT — sound — knowing that sound is based on action; action upon function, and function upon energy in motion thru material agency. We secured a nine-inch oscilloscope, hooked it in with a two-million-time amplification of sound. We picked up heart SOUNDS, lung

breathing SOUNDS, abdominal rumbling SOUNDS, etc., amplified them to where we could hear, and then converted sound into sight through an oscilloscopic wave pattern which we photographed on a specially-built Victor motion picture camera. It was not long until we realized we were working ON BY-PRODUCTS.

3rd. We then went to a vibration pick-up, knowing that every tissue cell that was in motion was emitting A PRODUCT of vibration. This was a closer tie-in with thing we wanted. The pick-up was more direct even if we did amplify sound two million times and pass it thru an oscilloscope where photographs were made of patterns.

4th. Our next step was to pick up ENERGY FLOW DIRECT by introducing electrodes and becoming a part of nerve circuit — THE PRODUCER — thus determining FLOW OF ENERGY DIRECT between two points in a nerve-circuit.

We long desired, in fact demanded, information of substantial, reliable, scientific character which would definitely answer questions re INCREASE OR DECREASE of quantity nerve force flow between brain and body, body and brain; whether treatment of stimulative or inhibitive character was better or worse than adjustment-restoration process. The only method at our command was to adjust, watch and wait, and hope to see or the patient feel, the change.

Our first step in this program was with Ellis Micro-Dynameter. It measured energy. Its method of pick-up contained innumerable, impossible to eliminate, variables. Second step was to pick up BY-PRODUCT — sound. This we did with a very sensitive, non-back-feed microphone. This was amplified two million times so it became audible, which was then fed to a nine-inch oscillograph which gave a graph wave pattern which was visible. This was permanently recorded on a specially-built Victor Animatograph moving picture camera. The eye does not long, nor does memory, accurately record the graph wave pattern. If photographed, it can be run many times and duplicate its record for observation and comparative study with other graphs of same case at subsequent times. This process worked, but it was a BY-PRODUCT and was too distantly removed from our objective. Third step in program was to use vibration pick-up. Every

tissue cell that is alive is functioning; to function is to move; when it moves, it gives forth a vibration of molecules, atoms of electrons. It was this vibration we picked up, amplified two million times, converted into an oscillographic graph wave pattern, and recorded in motion picture camera. Vibration was A PRODUCT and was one step closer to THE PRODUCER. Fourth step in program was to pick up THE PRODUCER, the mental impulse flow of nerve force energy thru nerves. This developed into the electroencephaloneuromentiograph. The method developed to an accurate science; in pick-up; in transmission; in separation of multiple channels; in amplifications; in two ways of recording; and in interpretation. That which we started to get, we now had.

Brain absorbs, condenses, concentrates, or generates energy. Nerves transmit or convey it from brain to nerve peripheries in body. Tissue cell receives and executes action, function, or motion. Mind in brain conceives that necessity, function flows afferently from tissue cell thru nerves, tissue cells actuate mental command for adaptive function.

Medical men frequently, innocently and educationally place cause of any failure-to-get-well case in an obscure location so it can neither be proven nor disproven.

Apoplexy "is caused by a clot of blood on brain"; paralysis below "is caused by a brain tumor"; certain effects, they say, prove "degeneration of spinal cord", etc. To hide "a cause" in brain or spinal cord is to put it where it will be found only after death — if then. It is pitiful to read letters written to us reporting hidden causes of cases who have failed to get well. IS THERE a clot of blood "producing pressure on brain;" IS THERE a brain tumor producing pressure so life force cannot be generated in section "under pressure"; IS THERE degeneration of spinal cord so "no nerve force can flow through to muscles below;" IS THERE atrophy of this or that nerve implying that because "there is," no nerve force energy flow can get through obstacle such a condition creates? There was a time when Chiropractors voiced same opinion when case progressed towards recovery in slow manner. THAT TIME HAS PASSED when such statements of doubt need be passed to ANY case. THERE IS A WAY OF KNOWING. The electroencephaloneuromentiograph will not "diagnose" clot of blood, brain tumor, degeneration of spinal

cord, progressive atrophy of anterior horns, etc., BUT IT WILL DECLARE WHETHER THERE IS OR IS NOT life force generated in brain; whether or not it is flowing from brain THROUGH spinal cord; whether or not IT IS reaching tissues; and how much or how little. IF life force IS generated in a section of brain or IS flowing below point of so-called generation of spinal cord, then there is A DIFFERENT LOCATION OF CAUSE than that ascribed by physicians who failed. The electroencephaloneuromentimpograph LOCATES THAT PLACE OF INTERFERENCE OF ENERGY FLOW. When located, Chiropractic is able to adjust and get case well.

As a result of tissue cell action, we get various and multiple tissue cell action by-products. One is heat which a clinical thermometer records in gross quantities. When a vertebral subluxation occludes an orifice thru which nerves or spinal cord pass, produces pressure, introduces interference and resistance to nerve or spinal cord transmission of energy, then an NCM records this increased heat in minute quantities. Another resultant by-product of action is sound such as muscular contractions pumping blood in or out of heart thru valves; or such as by-product of action of sound of muscular inhalation or exhalation of air in or out of lungs. Heart and lung by-product sounds can be picked up via a sensitive microphone, amplified so a group can hear them thru loud speakers. The amplified current can in addition pass thru to an oscillograph and there same current can be converted into sight wave patterns of sound so eye can differentiate between one kind of sound and another.

The vital question is: which gets nearer to a more direct measurement of energy flow itself; by-product heat or by-product sound or sight? Each stands in same relationship to other. Both are amplified BY-PRODUCTS. Is there a MORE DIRECT method of reaching and researching out ENERGY FLOW DIRECT?

Study tissue cell action. It receives energy and is thereby moved. It receives energy as given to it from the peripheral end of efferent nerve after having been given to that nerve by brain. As a result of energy passing into AND THRU tissue cell, there is tissue cell movement which gives off a corresponding and equivalent vibration of substance of tissue cell. Would picking

up VIBRATION of tissue cell structure be closer to ascertaining facts regarding nerve energy flow than picking up its by-products, heat or sound? Undoubtedly! In line with this fact, we installed an RCA Vibration Pick-up Unit TMV-163 B. The vibration pick-up, within THIS unit, is sufficient within itself to produce a small oscillograph wave pattern, such as a one-inch or possibly three-inch oscillograph, but it is not sufficient within itself to amplify a wave pattern large enough to produce an image on the nine-inch oscillograph. To secure this result we introduced an amplifier between vibration pick-up and nine-inch oscillograph.

Undoubtedly, vibration is also a product of action, action being a by-product of energy passing thru tissue cell matter. But, even so, it is a closer contact to direct flow of energy than is action with its throw-off by-product, heat or sound. Heat dissipates itself away from, exactly as sound throws itself away from its source. Heat and sound travel away from tissue cell from which it is a by-product. When picked up on surface of skin, heat and sound have traveled some distance from source where created. In picking up VIBRATION, you pick it more direct with less loss or leakage of its original form AT ITS SOURCE AND AT LOCATION WHERE IT WAS MADE and you pick up same vibration at same place where afferent nerve picks it up to flow it afferently to brain where mental interpretation is made of quantity, quality, or character of tissue cell function, therefore becomes Innately or mentally known. Vibration pick-up, being relatively insensitive to sound vibrations, may be used for making vibration measurements even in very noisy locations.

A study of previous statements proves that by-product heat can be picked up without picking up by-product sound; or by-product sound can be picked up without picking up by-product heat. Also, picking up vibration can be done independent of picking up either by-products heat or sound.

However, there is one step further, nearer and closer to seeking and researching nerve energy flow itself, viz., pick-up method of electroencephaloneuromentiograph. This does not pick up by-products heat, sound, or product vibration, close to or remote. IT PICKS UP NERVE ENERGY QUANTITY CURRENT FLOW DIRECT, the producer, thereby accomplishing a better understanding of our objectives sought.

Question of surface contact electrodes as media of pick-up of vibration or energy flow of mental impulse through nerves has gone through an interesting evolution in our laboratories. Medical men in practically all avenues of research, whether it be electrocardiography, electroencephalography, etc., have used more or less broad, flat surface electrodes. A zinc one inch wide, five or six inches long, glued to surface skin with collodion or using saline solution between and/or strapped with adhesive tape, etc. Readings, whether they be heart beat pulsation or energy flow, certainly covered too much skin territory to make anything like a definite or specific nerve fibre conclusion or localization of a section under study.

Under tests made years ago with resistance instruments, and more recently tests made with Ellis Micro-Dynameter, we found that small or large surface contacts made different and unreliable readings; heavy or light pressure contacts reach same conclusions. Heavy pressure was one reading; light pressure another, even though same surface coverage was used. As electrodes are usually held by hand, pressure never being twice the same, readings became variables upon which no predetermined or fixed pressure could be used or controlled. In more recent tests, working with vibration pick-up, we found it so EXTREMELY sensitive that vibration of hand holding pick-up superimposed its vibration on those we were picking up for purposes of research, thus defeating our objective of a single wave pattern study. Skin perspiration, which was and is a variable, was always present in that form of pick-up.

That which WE wanted was specific and exclusive information on SPECIFIC NERVE FIBRE continuity, beginning with section of brain, via spinal cord, through specific nerve fibre continuity, between brain and body and reverse, with its and their specific energy flow continuity; it must be picked up AS A SPECIFIC rather than in general terms; in a nerve rather than broad, bundle surfaces; under fixed pressure rather than varying degrees.

Even before our installation of the electroencephaloneuromen-timpograph, Mr. Schiernbeck had stated he was convinced our electrocardiograph was recording more than heart action wave patterns on the film. While it was the major pattern, he believed that weaving in and between were minor nerve current wave

patterns. Dr. Robb has written an article bearing on that point. In our electroencephaloneuromentimpographs we found a more or less consistent heart beat coming into some graphs, sometimes in channels 4, 3, and/or 2, rarely in channel 1. It was some time before we proved that it was a momentary heart-beat flash action. The difference between electrocardigraphs and electroencephaloneuromentimpographs is that in first heart action wave pattern is major and nerve current wave pattern minor; in latter, nerve current wave pattern is major and heart action wave pattern, if it occurs at all, is minor. Differences in results were based on difference in method of pick-up. In electrocardiograph, large flat electrodes are used. As Dr. Robb describes them: "The electrodes were the ordinary 1 x 3 inch plate zinc electrodes provided with the machine. In order to insure a good electrical connection with the skin, we coated the electrodes with a paste made with K. Y. jelly to which had been added KOH equal to one per cent weight of jelly and NcCL to twenty per cent. Electrodes were bandaged firmly to each part, thus insuring uniformity of contact with all patients." In electroencephaloneuromentimpographs we use a needlepoint dual electrode pick-up, using gravity weight, none of which were in any way fastened to body. Smaller electrode pick-up method excluded broad flat surface contacts, thereby almost eliminating major heart-beat action wave patterns.

This forced us to needle-point, or at least not over pin-point electrode points, rather than broad flat surfaces.

As research continued, we found some channels, which varied, secured distinctive well-defined graph wave patterns; other channels, which varied, we had to raise the gain to secure equally as distinctive well-defined graph wave patterns. This made some graph wave patterns with high gain, others with low gain, never equally comparative with each other, different from week to week because of difference in volume of some over others to produce them, hence we were knowingly building a variable into graphs which we were struggling to get away from in all research work.

Once worked out, solutions were simple, viz., we introduced coiled wire needle electrode points $6/1000$ ths of an inch in diameter into all sets of electrodes in eight channels. (2) We introduced an ohmmeter of 5 microamperes for full deflection to

test resistance. By using electrodes as exploratory devices, checking on ohmmeter, we went over area of flesh under investigation and found the high or low resistance linear areas and thus found THE sensitive NERVE FIBRE we wished readings of. Investigators have found that, with 100 as standard, bone has resistance of 7, tendons 30, muscle 100, and nerves 588, proving that nerves have less resistance and act as a better conductor than other tissues in body. When electrode was over a nerve fibre, resistance in ohmmeter was low, regardless of length of fibre. Where we were over other tissue, resistance was high. After we thus accurately located our two electrodes over a nerve, jack was removed from ohmmeter and plugged into its respective channel on bay 1, ready to make graph record. This was done on all eight channel sets of electrodes, after which eight recording graph wave patterns could be made. These improvements made possible setting of gains alike on all channels, securing a fixed valuation in all alike, week after week. Whereas, before we had TO RAISE the gain to get SOME patterns, now we could put ALL down to a fixed normal LOWEST level and secure BETTER patterns than before. This had another advantage in line without objectives: it produced A MORE SPECIFIC research study observation on single nerve fibres than a pencil-point electrode made possible.

The question then was: HOW make contact that pressure would be constant rather than introducing variables of differing hand pressures? As it was specific POINT contact we wished, this called for patient lying down, using a supporting media holding electrode in standing upright position. We secured collapsible metal camera tripods, removed camera heads, bored holes through connecting triangle base. We inserted electrode-points, connected with wires, fastening them into a hollow fibre tube of sufficient length to pass through this tripod supporting medium extending upward beyond tripod base opening. In this way, contact SURFACE was a constant; contact PRESSURE was a constant; fixed because it was ALWAYS and only equal to gravity weight of electrode itself, standing upright, thus creating a constant of weight pressure duplicating itself from case to case, day to day.

Two electrode-supporting media also were devised. 1. Ordinary or regular, light metal, camera tripod was used. Securing six of these, we built a cross-rod-arm into which we bored holes

a trifle larger than electrode rod. This rod extended to each side of center bolt clamping member which fastened it to tripod. By extending tripod legs, we could straddle any portion of body under test, dropping downward electrode rod passing thru holes in tripod extended arm. 2. We had base casts made to rest on floor, with upright pipe which acted as a sleeve to an extension which could move up or down which could be set with set-screw at any desired height. On this at superior top we had an extension flat metal arm 30" long and 2" wide. This had pairs of holes bored every so often, thru it. It was made to flex superior out of way when not in use, or to permit patient to get off table bed. By superior extension, lateral turning, or upward flexion of extension arm, we could secure any desired position or location for electrode rods which passed thru holes. If across chest or abdomen and patient was breathing, thus raising and lowering chest or abdomen, electrode and its hollow tube rides up and down through bored hole in tripod, fixing gravity pressure as a constant, regardless of whether moving up or down. Same was done with vibration pick-up. The exception to this rule was in testing varying sections of head over scalp; we were not always able to fix a perpendicular support. To overcome this, we builded a head-supporting elastic strap or spring head-band, which held our pen or pencil-point electrode on area under observation. In so doing, we eliminated entirely variables of hand vibration or varying pressure of hands of operators holding same.

Careful analysis of writings of workers in field of electrophysiology, called encephalography, reveals that very few reveal their technique. Most have a ONE-channel set, erected in elevators, clothes-closets, cubby-holes; used in open air with all energy variables; with patient in same room or adjoining room with all its energy variables, with little or no grounds against anything. They secured readings, true readings superimposed with other readings messed with a score of variables. In literature on this subject, revealing technique, two are working in half-way grounded booths. Not one mentioned shielding out North and South Pole magnetic energy waves.

During erection and testing of our electroencephaloneuromen-timpograph, with mechanism outside of the large shielded and grounded booth, in open room, with five copper wire leads going from open room into shielded and grounded booth, it was found

they alone introduced enough radio waves INTO booth that we picked up radio with full volume. It was as tho booth were NOT shielded at all. We grounded THOSE wires and that cut that. Each of eight leads IN booth has sixteen specially built pencil-point electrodes with ordinary wires four feet long. As wires hung from supports and touched or overlapped each other, they crossed currents and changed every reading on each lead from patient in booth to oscillograph and ink-writers on instrument in smaller shielded and grounded booth which we had to and did build to house instrument. We shielded each electrode wire and then grounded the sixteen shieldings. So sensitive is this instrument, so minute its pick-up, and so large its amplification, that just the slightest swaying motion of lead wires leading to electrodes, or slightest jar of people walking on concrete floor during reading, will change wave pattern. Reminds us much of the sensitivity of the seismograph at Kilauea Volcano Observatory. This done, we again established a constant of readings from each electrode.

Any graph produced under patient-in-open-room with instrument-in-open-room conditions, hooked to a human body with big, broad, flat contact surfaces, has created wave patterns, has been somehow interpreted and reached some hypothetical conclusions; but more directly it has produced one graph of human nerve energy current as a basic constant plus all energy variables superimposed onto and into wave pattern desired but not secured. Wave patterns previously secured by workers in this field have been MANY nerve waves woven and inter-woven into ONE single wave pattern, none of which could be separated from each other because many graph wave patterns were so inextricably mixed that it was difficult to say which was which.

In medical literature on this subject, we see frequent references to "alpha wave", "beta wave", "gamma wave", and "delta wave", etc., when trying to interpret one wave pattern. It would not have helped more, had they tried to separate first wave from second, third, and fourth, for all four were one. For the first time, we here were compelled to shield and ground out all of everything that WAS a variable of every kind of energy wave foreign to kind of wave we sought, were researching for, and must get: the true nerve energy wave alone. All variables such as beta or second, gamma or third, delta or fourth, as well as other variables

must be eliminated. This required new technique and a high state of development of a new process of the art of electrical approach to shielding and grounding out that which was taken for granted in an open room with an open instrument, etc. Perhaps this is why usual medical literature reveals scattered effort and that, no correlation of parts of varied workers, such a conglomeration of ideas that none have yet been made practical to aid sick get well.

It sounds immodest to say we have accomplished more practical conclusions, attained ends seemingly sought in vain by others, than the 1620 workers in this field in 13 years of their combined work. It hardly seems possible that so many sincere men, with greater potentials at their command, should have so badly under-shot their mark of coveted objectives they desired. It also hardly seems possible that no matter how sincere we are, with practically no potentials, entering a new field, fresh with inexperience, we should have so completely hit our mark of the coveted objectives they, as well as we, sought. In substantiation of the correctness of those statements, let us ask: Can it be that the medical profession with 5,000 years of organized study behind it, laboratories galore, millions of men, minds, and money, have not yet found or located THE cause of disease? We can understand THAT! Why can't we understand their failure in THIS field? Isn't it the same type of medical mind that thinks in terms of germs, prescriptions, operations, treatments, reflex actions, sympathetic nerves, etc., that tries to solve THIS problem? Why believe that THE SAME MIND, thinking SAME theories, could solve THIS problem with SAME theories as background? It took D. D. Palmer to solve CAUSE of dis-ease; so also has it taken other simple and otherwise untrained minds out of beaten paths to think solutions of this problem. It became necessary for minds NOT trained in medicine to solve ITS cause; so has it taken minds NOT trained in this field to solve this one. Results are not measured by men, minds, money, laboratories, years, but by correctness of fundamental principles upon which work is conducted. If PRINCIPLES are correct, results will be, no matter how simple and seemingly untrained the worker appears. If PRINCIPLES are NOT correct, then all work, no matter how long, how many men, minds, or money involved in vast education,

will continue to bring them out wrong. Witness medicine and Chiropractic as opposing principles to prove the contention.

How any worker in this extremely delicate field of readings could establish ANY reading with ANY reliability with dozens of energy variables overlapping and interweaving, and attempt to interpret them to mean anything with a specific accuracy, is beyond comprehension. These scientists, each more than likely a master in his field, must step out of their specific field and know much about intricacies and peculiarities of OTHER energy waves than those on which they seek information; to discriminate between one they want as a constant, and many they need eliminate as variables. In this particular, we have been blessed with pioneer and modern radio experience and are surrounded with practical radio engineers.

We have suggested that background of radio helped to attain our objective of a single wave pattern. More than that, there was a determined effort to eliminate variables and attain the constant. To put it another way: we used the EXCLUSIVE process of DEduction to reach facts. Other workers in this field worked out in open air, had many variables to contend with, which wove themselves into the wave pattern as an INCLUSIVE process of INDuction, therefore being once in their graph pattern they then tried to MENTALLY eliminate them by trying to read them out. How much easier to think a problem thru, build accordingly, and eliminate before you pick up.

In our writings we suggest advisability of sleeping with head to north to permit magnetic South and North Pole waves to run parallel to flow of human currents from head to feet, and vice versa; to obviate opposition of one current flowing contrary to other, creating conflict between two currents flowing opposite to each other. We also stressed necessity of shielding and grounding our laboratory booths, not only Hertzian, electrical and radio waves, BUT ALSO magnetic North and South Pole waves. It is now interesting to find following quotations from SCIENCE (Nov. 19, 1937):

"It has been found for nerve and striated muscle that an electric current is far less effective for stimulation IF IT PASSES AT RIGHT ANGLES THAN IF IT IS ORIENTED PARALLEL to the fibers. . . . It was found, however, that the threshold for

electric stimuli WAS MORE THAN 20 TIMES HIGHER FOR A CURRENT PASSING AT RIGHT ANGLES THAN FOR A CURRENT PASSING LONGITUDINALLY."

It is easier for a boat to propel itself WITH a current than it is to try to propel AGAINST a cross-current. Same is true of one power crossing its currents with another running at right angles.

Great importance and credit must be given to Otto Schiernbeck for his constant able judgment, advice, and work, without which much success of this work could not have been accomplished. His previous clear and keen understanding of Chiropractic, his long association background experience with Dossa Evins and his NCM, his expert knowledge of radio and electricity — all played directly into very needs we must have. Some was subsequently cut and fit, try and fail, check and eliminate, because we were now working into unknown and untried territory. Altho we had eight sets of leads of two in each set, we built four different switchboards before we succeeded in getting one which eliminated all pick-up of foreign elements. We started with an ordinary grouping of all ten leads. We soon separated them, spreading the leads, two in a pair, one above other in series of two each. We soon came to a longer and larger one, spreading out leads, each alongside its mate, spreading them farther apart, preventing overlapping which they did when they were above each other. Even this board was securely fastened to booth wall to prevent swaying motion, for swaying did modify our graph. Any touching of one lead with another; any motion of one lead upon another, even tho all were shielded and individually grounded, spoiled perfect individuality of graph record. After all these necessary precautions were taken, we still grounded each lead to a common ground to prevent pick-up from one lead to another, preventing leakage, to prevent what would be equivalent to cross-wire talk on telephone lines. On some of our early tests, some cases reported they felt slight electric currents. We couldn't see how this was possible. There "couldn't be any feedback from one booth to other," all wires being thoroly grounded. Tests showed two volts were being fed back thru leads.

When patient was prepared for tests, eight pairs of electrodes set, eight plugs are then thrown in on eight panels on set. This introduces an electrical surge which starts a first-jump heavy

oscillation. It is during this period until oscillation settles down that we get feed-back current thru electrodes into body of patient. One vital objection we hold against medical experimentation in this field of study is that they artificially stimulate nerve force energy flow, change constant, and defeat objective. To prevent this same error, we builded a special eight-channel fader panel current feed, building up gradual feed to eight panels slowly and steadily, bringing current to full power by degrees eliminating sudden surge. By inserting plugs first, then bringing current up to full, thru fader panel, stopped the surge violent oscillation, stopping feed-back to patient. This current was distorting wave patterns. We then went back to bay one, sand-papered off paint around every screw of each front panel board, and each screw in rear holding shielding cams in place, and ground all these to booth wall. These methods finally licked that problem.

Problems multiplied and then simplified. No sooner would one get licked than others showed up. In conclusion, there were so many that we did not know ANY existed. In exclusion, we didn't know so many COULD exist. Refining some out, meant refining more out. No one rested until EVERY variable WAS licked. Oscillations in every panel — one by one — WERE licked. The now completely shielded cable leading from bay one to bay two lay on floor. We shifted it FROM bays and lifted it FROM iron shielded floor. Air-conditioning fan-motor gave trouble and showed minute variables in oscillographs which are more sensitive than ink-writers, but even tho they did not show in ink-writing graphs, we knew they were there in minor form; — so that had to be stopped when making records. Some tubes in this equipment are like microphones — they pick up voice and noise, carry it to oscillographs and ink-writers, and incorporate it into a variable in wave patterns. For that reason, we insist upon SILENCE during making of records of cases. Slight jars to either bay changed patterns. Before we got thru with THE FIRST five-channel instrument, we practically rebuilt entire set — a thing the manufacturer should have done but didn't do because he didn't know problems we demanded to establish constants in a five-channel instrument. Instrument was SO sensitive we were often driven to distraction searching, finding, eliminating them. Keenest disappointment came when we started work, thinking

all was well. Then we had to suspend work until we finally became satisfied the coveted constants WERE a reality. So, step by step, we kept improving accuracy and efficiency, quality and character of our pattern until finally we feel we have mastered the art of producing a SINGLE, SIMPLE, SPECIFIC, NERVE ENERGY WAVE PATTERN which reveals exactly what all of us have so much wanted to know these many years.

In the electroencephaloneuromentiograph (Set No. 2) there are nine channels. Each channel SHOULD BE completely, functionally, independent of any other from the tip of electrode pick-up to ending result in oscillograph and/or writer graph. When it is remembered that sets have been made and were used in open room, with patient in open air, it can be seen that complications which we found did not exist to other workers. That is to say, they existed but did not bother others because they were a part of the picture, so why bother about them until such time as it was necessary to eliminate them by mentally reading extraneous and unnecessary wave patterns out. But the moment we put our instrument with its five channels under shielded and grounded test conditions, we demanded each channel be functionally IN FACT completely isolated from all others. Practically, it did not work that way. There was a feed-back and a feed-forward from one oscillograph into another or others; from one ink-writer into another or others. After researching this "bug" we determined this was because of one common electrical feed line from ONE set of B batteries to all amplifying panels, oscillographs, and ink-writers at end of those circuits. We built a separate metal stand, external to bay one, with four shelves, each containing a complete and independent set of B batteries, each going direct to each amplifying unit, each an independent feed to each panel, thus to each oscillograph and ink-writer channel, each isolated from other, each separately grounded, including grounding the metal stand. With this done, there was no feed-back or feeding forward of current overlapping graphs from this source from one set of electrodes to another or others.

Electrical induction still was a partial problem. All wires leading from bay one to bay two were in unshielded ordinary covered wires. Early in our work we found cross-wire ink-writer records wherein pattern from electrode lead one would show in other

patterns. With five sets of leads, all more or less leaking into other lines, as they fed from bay one to bay two, they became uncertain variables which upset all accurate calculations of a constant in each distinct individuality of record. Several things had to be done, viz., shield all wires leading from each panel to the common junction lead cable to bay two; shield wires leading from bay one to bay two, crossing them; shield wires of cable leading from bay two to ink-writer attachment device, thus obviating these dominating variables of our work.

One day during electrical repairs, we had all outside-booth electricity cut. Wires were out and off. During that same time we had some repairs to be done on the electrode pick-up equipment in which soldering had to be done. Soldering iron was plugged into one of floor plugs INSIDE shielded and grounded booth. Obviously, we got no "juice." While this was going on, tests were being made in equipment shielded and grounded booth where "juice" was NOT cut off. That open and unshielded wire from plug to soldering iron made a marked and perceptible change in graph wave patterns on oscillographs and ink-writer device, IN OTHER BOOTH, with all juice OFF in pick-up booth.

This instrument is SO sensitive to external variables that vibration unnoticeable to our senses became a monumental evil to it. SLIGHTEST MINUTE vibration OF ANY KIND became a MARKED variable in wave patterns in oscillographs and ink-writers regardless of which one of eight channels was recording. Vibrations came from shielding partitions inside of each of eight panels, front partition panel covers, or wires inside panels, of floor, or opening and closing doors. In fact, minute VIBRATION FROM ANY SOURCE changed each/any/or all wave patterns from a constant to a variable. To overcome these, we placed heavy rubber pads under each of eight bay legs, under panel covers; fastened down wires; put wedges between B batteries and partition shieldings; insisted upon NO opening or closing of doors; positively WOULD NOT tolerate moving about of observers during making of any reading. Visitors, when in Research Laboratory, outside of shielded and grounded booths, WHEN RECORDS ARE BEING MADE, MUST stand away from AND NOT TOUCH, lean against, or jar booth. To touch, lean against, or jar booth is to shake copper screening inside, which means to disturb

our grounds which lead directly to electrode pick-up tips and introduces a variable in graph records. We became "nuts" about "vibration bugs" that could possibly give SLIGHTEST movement creating vibration. Bit by bit we gradually refined every variable that entered the picture in our records of distortion.

During Lyceum, 1937, groups of Chiropractors were permitted to surround Research Laboratory booth to observe work done on energy tests. At first we permitted them to stand close to booth but NOT actually touching or leaning against it. In tests thus made, various channels were found to be not true wave patterns of conditions read. To prevent duplication of distorted wave patterns, everybody was asked to stand as far away from booth as possible and still see in booth to observe work done. When this WAS done, wave patterns cleared up and came back to what they should be with no people outside looking in. Explanation: radiation of energy from a multiple of bodies was sufficient to affect reading quantity values. In exact ratio as a group established a multiple external interference, one person would do as much in reduced degree. Now all work is observed from a distance of not less than one foot from booth.

Occasionally we noticed an irregular time beat variable which came in on other channels than channel five which has the clock time beat on the writer graph. For a long time we could not account for it. It was not a leakage from one channel to some other channel because the beat did not coincide — sometimes it was ahead, sometimes behind; but it was nevertheless more or less regular and consistent. It was some time before we found it was a watch ticking on wrist of one of operators who stood close-by subject when pick-up was made. This necessitated elimination of watches from wrists of persons in booth, including cases. It also necessitated placing clock outside booth for general time-checking purposes.

Up to October 29, 1937, we mentioned five channels in our electroencephaloneuromentimpograph. On this date we inaugurated three additional channels, now making eight. There was injected in addition an automatic second time indication every second into that body wave graph pattern. This "automatic second time indication" broke into regular graph wave pattern by breaking normal continuity of graph wave pattern. If wave

pattern was on down-stroke and automatic sound timer was on up-stroke, obviously the complete and correct graph wave pattern being picked up from patient's body by, in, and thru channel five was distorted, not giving an exact and true picture of bodily conditions picked up by channel five. To obviate this, automatic second timer was taken OUT of channel five, put into a sixth separate channel, by building a separate ink-writing pen apart from and completely independent of any other of the five channels. Thus was created the sixth channel. This gave us an improved and most perfect fifth channel.

Patient lying on table, being read, often became nervous, restless, had a twinge of pain which would give a sudden twitch, jerk of muscles, which recorded itself thru channel at source of origination, and so far as graph wave pattern was concerned, would indicate as tho it were a part of character of nervous impulse force flow. A possible deception of interpretation could easily inject itself innocently upon our parts, without remembering where it was and not knowing where to read it out at time of its recording. To prevent this deception, a separate electrical feed-line PUSH BUTTON leading from pick-up booth leading direct to a SEVENTH channel on ink-writing attachment was installed. Technician in pick-up booth sees twitch or jerk, pushes button one, two, three, four, or five times, at time and place according to channel, which is now recorded on separate seventh channel, thus notifying us when interpreting record to not consider it other than what it is.

Sixth channel is inserted between what were formerly channels one and two; seventh channel is inserted between what were formerly channels four and five. By building a separate ink well for channels six and seven, we were now able to put human body graph wave patterns one, two, three, four, and five on paper in BLACK ink, and channels six and seven in RED ink, which was later changed to green for photographic purposes. Not only did we eliminate time recorder out of channel five, but we made it a separate channel clearly observable, thus clarifying channel five. Not only did we create channel seven, but it gave us additional factor of indicating unusual conditions and on which channel they occurred, for purposes of reading them out of the record of five channels about which we wished to gain true and correct information.

In reference to nervous energy involved in seeing, the following is taken from "Seeing" by Luckiesh and Moss, page 11:

"Adult persons use their eyes about sixteen hours each day — eight hours in addition to the average daily work-period. Approximately *seventy per cent of the muscular activities is due to impulses received through the eyes.* According to a careful survey which we made of twenty-one common industrial and office activities, the eyes are engaged in serious work seventy per cent of the time. It should require no data of this sort to show that our eyes are busy during *two-thirds* of every day. However, such data are necessary to awaken consciousness to this fact, because seeing is largely as automatic and involuntary as breathing. Even with adequate and proper lighting and with normal eyesight, natural, or corrected by means of lenses, it has been estimated that one-fourth of the consumption of bodily energy is due to seeing."

From "Seeing and Human Welfare," by Matthew Luckiesh, pages 2 and 3:

"Marvelous as the eyes are, they are only tools. Seeing is a complexity consisting of the external world of physical objects and factors the intricate internal world of psycho-physiological effects. The eyes are tools and doorways between these two worlds. The end-products of seeing are human efficiency, behavior and welfare. *Much of the energy which we expend between arising and bedtime is used in the process of seeing. Much of the air we breathe and the food we eat is work. Much of the fatigue in this half-seeing world of civilized being is due to seeing.*"

This, then, was our manner of approach to solve that problem: On each case, of each week-day's check records, we took TWO different kinds of records: one WITH lights ON; one WITH lights OFF. By comparison, we now had a record before us of (a) the same case, (b) the same day, (c) under same circumstances, (d) without altering the constants of then and there. The lights on and off became a variable especially manufactured to see IF the VARIABLE WAS a variable. After an exhaustive series of posting these graph records on comparison board, we were able to determine whether lights ON did make a difference.

Many graph wave patterns were taken of same case, of many cases, preceding and following with lights on and lights off. Graph pattern being continuous, accurate study and comparisons were possible to see actual difference, if any, made by this series of tests. These tests were illuminating to extent that they proved one point: when lights WERE ON a certain relative degree of vibration of visibility would enter eyes, go to brain, be interpreted as light and thus raise graph wave pattern to an extent that this function ADDED itself and superimposed itself to and upon regular pattern; and when lights WERE OFF, that certain relative degree of vibration of visibility did not enter eyes, did not go to brain, was not interpreted as such, and thus did not raise graph wave pattern, therefore nothing was superimposed to and upon regular pattern. Graph wave patterns in both instances, lights on and lights off, were the same, not changing in any broad or narrow particulars, except that one was heightened slightly with lights on and other was lowered slightly with lights off. In both instances graph wave patterns maintained consistently, case after case, week after week, their regular pathological pattern, not changing in any particular because of lights on or off.

Point by point, we are including or excluding certain refined points of technique. This being an entirely NEW field of research, never so exhaustively or practically applied before, we find no previous information upon which to determine rules of application. WE must do the work to find whether it is vital to INCLUDE or EXCLUDE certain things.

In electrocardiographic work, we found it vital that patient lie down and relax at least fifteen minutes BEFORE making record. In polygraph criminal lie-detector test work we insist upon necessity of placing suspect at rest not less than fifteen minutes BEFORE making tests to prove his innocence or guilt. Till this date (1937) we have not insisted upon a potential fifteen-minute rest period BEFORE making the electroencephaloneuromentimograph record. As a test only, we are substituting an air-filled cushion for patient to rest on, placed on rest table upon which patient lies, believing that hard table is NOT as conducive to complete relaxation. Air-filled cushion should produce or induce MORE relaxation than harder table WITHOUT air-filled cushion. It will be interesting to note what changes, if any, we will note in records.

People, generally, are afraid to confess error, admit a mistake, admit a wrong method or system, and try a new one. They think that to do so is an admission of weakness, poor judgment, and failure. Grant that error IS weakness, mistake IS poor judgment, wrong method IS failure — how is one to produce strength, good judgment, and success any other way than to use them as a step upward? Admit, forget, bury, and march on. There is no other way to greater accomplishment. All this is a prelude to what follows.

Since we began electroencephaloneuromentimpograph research, we have been following more or less a routine of location of pick-up electrodes. Let us repeat it:

Head electrodes — placement:

“A” left of head

“B” right of head

Atlas electrodes — placement:

“A” left of transverse process tip

“B” right of transverse process tip

Or, if above was impossible, this:

“A” on left or right atlas transverse tip

“B” on spinous tip of axis

Vertebral electrodes (dorsal or lumbar):

“A” left of vertebra at emission of spinal nerve

“B” right of vertebra at emission of spinal nerve — two being on opposite sides of each other, and on two different nerves.

Leg electrodes:

“A” above knee

“B” below knee of same leg.

“A” and “B” electrodes constituted what we thought were a pair in and to complete a circuit. Has this been the right method, correct avenue of approach to secure that which we were seeking? That depends upon WHAT WE WERE SEEKING.

The brain, and ALL the brain, manufactures enough energy for body, and ALL the body. EACH PART of brain has a direct connection with each part of body. Liver lobe of brain manu-

factures energy for liver organ of body. So does each tissue cell of brain manufacture energy for each tissue cell of body. Between brain and body is spinal cord which branches into spinal nerves, which finally ramify so minutely that they form a complete and direct connection between brain cell and tissue cell, called **EFferent** nervous system. Between body and brain are multitudinous minute nerve fibres which gather into bundles; bundles into spinal nerves; spinal nerves into spinal cord; spinal cord back into and, as they segregate, become brain itself, which then branch to various lobes, gyri, and convolutions, called **AFferent** system. This system, gathering and distribution, between brain to body and body to brain, constitute a series of brain-nerve **CIRCUITS**, efferent **AND** afferent, thru which flows a continuity of energy manufactured in brain and expressed in body; impression and sensation returning to afferent half. **IF** there is continuity of brain and nerve in this circuit; and **IF** there is continuity normal quantity flow of energy thru brain and nerve in this circuit, there **WILL BE** continuity of **FUNCTION** at periphery of nerve, and continuity **OF SENSATION** at epiphery of brain — a condition called health. Dis-ease begins and grows **IF** continuity of energy is interfered with **BETWEEN** brain and body, or body and brain.

What we **DESIRED** to do, with electroencephaloneuromentim-pograph research was to study normal or abnormal continuity quantity flow of energy between brain and body, in and thru brain to body; body to brain series of circuits. Have we ascertained **THIS** information in our location of placements as stated above? Isn't our fundamental to check on mental impulse nerve flow carrier wave in a circuit between electrodes "A" and "B"? Is there a better method of placement? Obviously, to place "A" of one circuit of electrodes on **ONE** spinal nerve on **LEFT** of vertebra, and "B" of same circuit of electrodes on **ANOTHER** spinal nerve on **RIGHT** of **SAME** vertebra was placing two electrodes on **TWO** circuits of **TWO** nerves and was securing **NO** single circuit information from **ONE** brain-nerve-body circuit.

To admit there may be a better way of circuit-placement, is to secure more information, more accurate and reliable data and secure more efficiently that information we need know to reach more secure foundation. That we have secured information of unquestioned value in the past, is obvious.

Beginning as of Nov. 5, 1937, following electrode circuit-placement change took place:

Head electrode — placement:

Same as before.

Atlas electrodes — placement:

"A" on left OR right transverse process tip

"B" on head

Vertebral electrodes (dorsal or lumbar) — placement:

"A" on localized spot on head

"B" on left OR right of vertebra at emission of spinal nerve to organ as major involved.

Inasmuch as comparisons are what is desired, we take circuit readings from both sides of head to opposite sides of vertebra in question. If what we desire is a "heart circuit test reading", then "A" would be on RIGHT side of head; "B" on LEFT side of approximate second dorsal, because fibers going TO heart come FROM right side of head and cross over at approximate sixth cervical level. If we desired a "right lung test reading" for tuberculosis of that lung, then "A" would be on LEFT side of head; "B" on RIGHT side of approximate fourth dorsal, because fibers going TO right lung come FROM left side of head and cross over at approximately sixth cervical level.

Leg electrodes — placement:

"A" on localized spot on head

"B" on either left or right leg either above on thigh or below on calf.

It will be interesting to check contrast between record graphs secured with circuit-placement as against former way.

Each time a new change of technique was made, a record of cases was kept so that when series of graph patterns of same case on several cases by comparison were placed on study bulletin board, comparisons and conclusions noted could be recorded.

Producer, product, by-product; steps in study, study in approximations. Medicine has been and still is study in seeing, listening-to, grouping, prescribing, and cutting out by-products. Chiropractic has been and still is a study, understanding, interference with releasing resistance to, the producer-Innate mental

impulse normal supply of nerve force flow. If Chiropractors could and would discriminate between these principles and practices, Chiropractic would be ALL Chiropractic and Chiropractors would be 100 per cent. Too many are "kanakas," half-breeds, mixed breeds, some of one and some of another, usually much of one and little of other. An analysis of minds at work in preserving, protecting, and defending Chiropractic will prove their research has always been to know and make free THE PRODUCER.

Elimination of variables! From what sources come variables? From the most unexpected conditions. Here's one we found today (1937) which from now on will be eliminated. The case lies on a table in one shielded and grounded laboratory. Instrument is set up and does its recording in another laboratory. Between these two laboratories is an open space. In each wall of each laboratory is the copper screening, with an open space between iron sheeting so that technicians in one booth may communicate with technicians in other. In other words, SOUND can pass from one lab into other. As record is being made, paper unrolls from roll of blank paper, is then recorded with graph wave patterns, and as it rolls from ink-writing attachment, it rolls into a basket below. Sometimes this paper CRACKLES as paper will, especially when it folds up in miscellaneous ways in the basket. We found that this crackling sound passed out of one laboratory into other, and was heard by patient lying on table, and actually changed the BRAIN wave pattern graph of channel one. Observing this, it was made a subject of special test, and verified. Inasmuch as sound enters brain and is heard by brain only, only brain channel wave pattern was changed. This became another variable to be eliminated in perfecting the pattern graphs.

An observer little realizes detail to eliminate variables in our research work. With patient lying on table, with electrodes ready for energy pick-up, we click on eight possible electric switches successively, between time we are ready and recording actually begins. Each of eight "clicks" is loud enough to be heard by patient, to be recorded in his or her mind and to upset equilibrium of constant we want to record. As a "noise" it enters ear, is recorded by mind, and to that extent is a variable which upsets our constant. We endeavored to secure silent switches which we could turn on and off with complete silence. None such is made.

The problem was placed before one of the large electrical manufacturing concerns, with the result that it wasn't long until they made eight absolutely silent switches which are now installed. We eliminated another variable and established more firmly our constant.

In electroencephaloneuromentiographic work, it is necessary to have a constant source of voltage supply on first stages of amplification. Equipment for supplying this has not been available in the past on account of inability to secure perfect filtering so it has been necessary to depend on batteries. Internal resistance of batteries changes with use, also any impurities in metals and chemicals used in the construction of the batteries will cause them to become internally noisy. In ordinary lines of work this is not even a factor, but in our work it is a serious variable which must be eliminated. A battery may become noisy shortly after its installation and this noise will be reflected in our records, being superimposed upon carrier wave form picked up from subject under observation. In speaking to one of our radio engineers, he mentioned he had succeeded in constructing a power supply unit with extremely low internal resistance and with perfect filtering and voltage regulation. We asked him to check on the possibility of constructing units of sufficient size to operate the electroencephaloneuromentiograph. In the event we encounter difficulty in making use of this equipment we can shunt batteries with high capacity condensers, very materially overcoming the effect of noisy batteries.

Following news statement shows what happened:

**"AURORA BOREALIS AND EARTH CURRENTS KNOCK OUT
WIRES IN TRI-CITIES FOR THREE HOURS**

"Without giving Tri-City residents a glimpse of the beauties of its celestial display a particularly effective Aurora Borealis Saturday generated earth currents that hampered wire messages and slowed up service for about three hours between 6 and 9 A.M.

"Clouds and fog were too heavy for the northern lights to make themselves manifest to the eye, but telegraph companies felt the full effect of the earth currents. Western Union officials stated the disturbance was first noted at midnight, then cleared up. About 6 A.M. it came back again and manifested itself by making the positive and negative poles on the main line repeater lines so uneven that communication was greatly hampered. This was overcome to an extent by using the two and three wire method. Short

distance messages were handled easily but the main line circuits involving the long jump of 300 miles to Omaha and vice versa were considerably unbalanced. Messages from Chicago to the west were routed thru St. Louis to escape the earth currents which seemed more apparent thru central and eastern Iowa.

"There was some interference with the service felt intermittently during the day but while service was slowed up the telegraph companies were able to keep business going."

(The Davenport Democrat and Leader, 1/23/38)

Following story also shows further developments as of sun-spot influences:

"Why should anyone think sunspots can change the opinions of the masses, causing them to favor a war at one time which they would resist at others? The man in the street would not know there were any sunspots if the astronomer did not tell him and give him the chance to verify it.

"There are two kinds of evidence: first, that sunspots could have such an effect and second, circumstantial evidence that they actually do have it.

"Beyond that there are probably other, though not definitely known direct effects on the nervous system.

"One possibility, suggested by Professor Stetson, is that the different character of the sunlight at times of many sunspots and times of few of them may change the number or character of electrified ions, floating invisibly in the air breathed by human beings. Some physiologists believe that this might change the physical or mental condition of average persons, although this is a subject still but little investigated."

(Chicago Herald & Examiner, Jan. 23, 1938.)

"Short Wave and Television," April, 1938 contains article titled, "What Sun Spots Do To Short Waves." We quote:

"A surprising and very important fact was that short-wave transmission between New York and Buenos Aires, OR IN A NORTH AND SOUTH DIRECTION, was practically not affected at all. . . . The effect of the magnetic storms on the LONG EAST AND WEST (wire) TELEGRAPH CIRCUITS, especially in the northern part of the United States and Western Canada, IS TO INDUCE ABNORMAL CURRENTS IN THESE CIRCUITS, WHICH FREQUENTLY BURN OUT APPARATUS BY CERTAIN POINTS AND IN GENERAL INTERFERE WITH REGULAR SERVICE."

The vital factor for us to know is that on this particular day, we were conducting work in the electroencephaloneuromentimograph shielded and grounded booths. DID THEY shield and

ground at all, partially or completely? The records taken that day SHOW THEY WERE AS PERFECT as on any previous day, showing that the external surge DID NOT PENETRATE the booths; proving, for the first real external test, that our booths DO shield and ground out ANY AND ALL external forces.

The best form of electrode to date was a spiral coiled wire in a gravity-weight holder. It had variables, such as occasionally the small fine wire (6/1000ths of an inch in diameter) would get bent in holder; or, because of gravity weight, holder would be subject to movement as individual breathed, which produced inhalation and exhalation graph wave patterns, or was subject to slipping out of contact.

To prevent these variables, we devised a flat celluloid disc which was placed in contact with area from which reading was picked up, disc being taped to body. This obviated movement variables, for if patient moved, he moved the disc with him, rather than separate and independent of him. Disc was small and circular. On upper or superior surface was a small flat bit of metal which acted as a spring, with a constant pressure downward. On distal tip of flat metal was secured a tungsten sharp-pointed needle. Needle passed thru a circular opening in disc, its point coming in contact with surface of skin beneath. This small flat bit of metal had an insertion pocket at its center end into which our pick-up wire was placed when ready to make contact for our pick-up record.

This device retained needle-point contact, did away with slipping off skin of gravity-weight device, obviating the variables of bent wires and slipping electrodes.

Experimental research comparison tests proved tungsten needle a better metal for pick-ups than was wire. Being taped to body, it gave continuous contact with perfect reproduction of energy flow in graph wave pattern.

Another step-up in efficiency, with use of flat disc-electrodes taped on body, was that we could place them with a greater varying location for tests than was possible with gravity-weight electrodes. With latter, we could place them only upon a superior surface. With discs we could place some on back, with patient lying on back. Being taped on, this increased our pick-up value materially, increasing latitude of location of pick-up.

On March 23, 1938, we succeeded in eliminating another variable in our electroencephaloneuromentimpograph work.

The loud hum from the power supply of bay two, is now completely eliminated, and patient will no longer be aware of power turned on and off.

It is well known that exposures of living human bodies to repeated doses of X-rays, inject some unknown abstract into that body which, if repeated often enough, would eventually break down functional and physical continuity of structure and produce burns, etc. To prevent this, cases are permitted to dissipate this X-ray quantity after exposures, before repeating. For this reason, in our Clinic we take comparative X-rays every two weeks. Upon entering Clinic, each case is exposed to ten spinographs, including two 8 x 36, full length.

In recording mental and nervous impulses of a living human body with electroencephaloneuromentimpograph, we are acutely aware that we are working with infinitesimal currents. Any external artificial force injected into that living body disturbs and upsets the normal and natural quantity-functioning equilibrium of nervous energy, either stimulating or inhibiting its action.

Till March 23, 1938, executive secretary of Clinic, in scheduling systematic arrangement of multiple examinations, laboratory tests, etc., placed them at whatever time convenient to Staff Members, case, etc. Sometimes X-rays would be taken BEFORE electroencephaloneuromentimpograph graphs; other times, electroencephaloneuromentimpograph would precede X-rays, etc. On and after this date, instructions were given to eliminate the variable which was artificially made, by taking ALL electroencephaloneuromentimpograph graphs BEFORE X-ray spinographs are made, thus getting a more nearly accurate record of the internal energetic constant of case. This rule was made to apply at all times during stay of case.

Once this idea became conscious to us, it was an easy matter to prove it by taking electroencephaloneuromentimpograph records of cases before and after, reversing order; some with X-rays BEFORE electroencephaloneuromentimpograph records of cases, and others with electroencephaloneuromentimpograph BEFORE X-rays. Difference was plain and distinctly obvious.

The extensive interval between April 4th and October 28th, 1938, saw little done in the way of improving equipment. The "bugs" had been quite thoroughly licked. Time, thot, and attention were given to experimental and practical tests, interpretations, and development of understanding of records made.

On October 28, 1938, we made another change in equipment, viz., we secured and tested duralumin pens on the electroencephaloneuromentimpograph in place of the stainless steel type; the reason for this being the lighter weight of duralumin. The stainless steel pens weigh .2037 gram; the duralumin .0631 gram — which roughly gives us a 66 2/3 per cent reduction in weight. Reducing the inertia of the coil and pen system to this extent will give a more accurate recording as less energy is required to start the pen, plus the fact that pen will not "carry over" past the true energy level indication.

These questions frequently arise:

If a nerve does NOT carry a flowing mental impulse current, could it do so if it had the current to carry?

If a nerve has pressure, resistance, and interference on its path, and its quantity of flowing mental impulse current IS reduced because thereof, is that nerve substance incapacitated in carrying capacity because of the lack of keeping that nerve or nerves built up because of the lack of current to keep it built up?

If the nerve does not carry full capacity in transmitting current from brain to body, or body to brain, is it because of a normal nerve not receiving its normal supply quantity; or is it because the nerve itself could not carry the normal quantity if it received same to carry?

Obviously, a copper wire will carry electricity. Its potential has a carrying capacity. If the wire is NOT carrying ANY electricity, it is because of two factors: (1) there is no current TO carry; or (2) the circuit has been broken in some of the many ways, such as a broken wire, a switch off, the wire itself damaged in some way. The same questions we here raise about a nerve could be equally well raised in relation to a wire, with the exception that the wire is an inanimate composition of "dead" matter and does not possess the inherent living recuperative and rebuilding process if injured.

We hear a great deal in neuro-physiology and in neurological pathology about the broken-down nerve tissue structure itself. Microscopic slides are made of sections which seemingly prove the case of a break-down in nerve tissue structure making it impossible for nerve or nerves to carry a capacity load. IF these conditions DO exist, does it destroy the transmitting value of a nerve or nerves? If broken-down nerve tissue structure can and does exist, does this destroy the transmitting value of a nerve or nerves? If a nerve or nerves can and DO carry their capacity load, can they do this in spite of apparent destruction or break-down nerve tissue structure, destroyed in their tissue continuity, notwithstanding what neuro-physiology and neuro-pathology microscopic slides seemingly present as evidence of such tissue destruction?

To answer these questions involved an important issue and became an important avenue of research.

It is obvious that if a nerve is under compression-pressure, restriction pressure, torque-constriction-pressure, or cicatricial-pressure, then it has an interference with resistance to transmission which does interfere with carrying capacity inferior to that point of pressure, between point of pressure and point of expression at periphery of nerve. Any electrode pick-up of potential with electroencephaloneuromentiograph at any point inferior to point of pressure would prove a reduction below par in normal flow. This proves just what it proves, viz., that capacity flow is below normal. But does it prove that the nerve could not, would not, carry normal capacity if it had a normal capacity of mental impulse flow to carry? If a normal capacity of mental impulse flow was sent to and into that nerve, would it be capable of carrying it? Is there a common condition of broken down tissue nerve structure which would and does require considerable reconstruction work to be done to that nerve or those nerves before they could carry normal capacity, if, as, and when the pressure had been removed?

There seems a simple way of proving the answers. Take a case where manifest paralysis exists, where muscles cannot be educationally controlled in functional action because of a reduced flow of mental impulse capacity going to muscles; place the electrodic hook-up on that case with the electroencephaloneuromentiograph; take a "norm" record of graph wave pattern as is.

Then, still with hook-up in same situ as in former test, thruout five channels from brain to body, shoot a small shock of external artificial electricity into and thru the lowest of those channels, producing a changed graph wave pattern, thereby gaining information of its flowing value by comparison thru the five channels.

Electrically shocking paralyzed muscles to secure re-actions or "reflexes" is not new, but it IS new to record graph wave patterns of a before and an after; one without and the other with, in a continuous record, portraying for study the volume of flow thruout nerve circuit from body to brain and brain to body, and note contrast to prove carrying capacity of nerves rather than see muscular jerks. The purpose, objective, and method enlarge the scope of study.

Shooting the shock thru the paralyzed muscles will produce a difference in graph wave patterns between "norm" and abnormal. It will prove whether "paralysis" is destruction of tissue or one of transmission alone. If graph wave pattern HAS materially changed, showing INCREASED carrying capacity of external, artificial electricity over the "norm" graph wave pattern, then it will prove that the nerve or nerves can, will, and do carry increased load that such external artificial electricity was expected to produce. This proves that that nerve or nerves CAN carry an increased load and that nothing is wrong with normal carrying capacity of nerves. This further proves that if, as, and when the normal mental impulse supply can and does get to and into those nerves, via the adjustment of vertebral subluxation with its releasure of interference, the nerves are capable of delivery of load to muscles for execution into function as periphery of those nerves.

To carry on these tests, dry cell batteries were hooked into series, controlled by rheostat to control volume which was reduced to but a trifle over normal carrying capacity of a nerve or nerves. These batteries were located in mechanical second shielded and grounded booth, outside of first or pick-up booth. Wires leading from first booth to second were shielded to prevent leakage of electricity into shielded and grounded booth. Snap buttons were placed on peripheral ends of electrode lead wires, which were snapped onto ends of electrode wires. An extension push-button was arranged in circuit which was run over

opposite side of booth along side of indicator push-button channel so that operator could control both simultaneously, viz., when he turned on electrical current with one push-button for purpose of tests, he also simultaneously pushed push-button indicator on indicator channel three, and indicated exactly when he turned current on, thus recording point, place, and time for purpose of identifying itself, by comparison with "norm" record, on the ink-writer oscillograph graph wave pattern. The interesting feature in these tests was to observe and note the travel of increased current from point of introduction of electrical current up to and thru nerves to brain, etc., and whether or not such was a reality.

Two series of tests were made: First, purely experimental in ordinary and usual people, and then followed upon a selected type of actual cases, in which the problem existed for which tests were made, typical for that purpose, once the practicability was proven in experimental work.

The Voltage Regulator recently installed on the electroencephaloneuromentimpograph will maintain a constant voltage output at 115 volts, plus or minus one per cent. Therefore, its ability to eliminate the variables introduced by changing line voltage makes it a virtual necessity in a well-equipped laboratory. Line voltages are subject to fluctuations of approximately ten per cent. This type of voltage regulator could also be used on X-ray machines to eliminate the effect of varying filament voltage.

The device is entirely automatic and has no moving parts. There are no adjustments to be made and no maintenance is required.

The output voltage will be stabilized to plus or minus one per cent at any load, from no load to full load. The regulating action is practically instantaneous, the time required for the device to adjust itself to new voltage or load conditions being so short that it is imperceptible with an ordinary voltmeter.

HOW TO ASCERTAIN THE UNKNOWN TO A KNOWN

To explain the electroencephaloneuromentimpograph in simple terms, the work it does, how it does it, and the purpose of its use

and why we entered that field of research, let us give this explanation.

Suppose you had a dynamo generating a quantity of electricity, which quantity was UNKNOWN; you had wires connected thereto, transmitting that UNKNOWN quantity of electricity; you had a globe connected to those wires and utilizing an UNKNOWN quantity of electricity, producing an UNKNOWN quantity of light; and thru all these you had flowing an UNKNOWN quantity of electricity, the QUANTITY of which you wanted to know as a matter of knowledge, or needed to know to duplicate. You would unquestionably introduce a meter at either the generator, wires, and/or globe, and register that UNKNOWN quantity into a KNOWN quantity. You then could tell EXACTLY the output of the generator, the EXACT quantity flowing thru wires, the EXACT input in globe, the EXACT amount of function performed, thus changing the unknown into the known.

If, in addition, attached to the meter, you introduced a recording device which produced a continuous running graph wave pattern of that electrical quantity flowing thru the meter, regardless of whether at generator, wires, or globe, you would now have A PERMANENT VISIBLE TIMED RECORD of production at epipheral beginning, flowing between and functioning at peripheral ending. If the current generation, flow or function varied — increased or decreased — the meter would register the change, up or down; the recording device would give a permanent visible timed record of those changes, be they slight or great; the time each took place and the time it took to make each change. You would not need guess or hypothecate in imaginary terms what you hoped would occur, or believed was occurring. Neither would you trust to memory or recollection what once was supposed to have taken place. You could and would KNOW! That IS done today in all established electrical plants. They meter measure, they produce a permanent record. If there is ever any doubt, the meter proves flow; the record settles all question!

The baffling problem today, the stumbling block, the dispute between all health professions and between members of every profession, is that NONE have uniform facts. All are sincere in

thinking they have, and they base their conclusions on the same controversial bases Chiropractic and Chiropractors once had, viz., medical men said the principle and practice of Chiropractic was a delusion; the brain did not generate a nerve force; it did not flow from brain to body; a vertebral subluxation was not the cause of any dis-ease; a vertebral adjustment was not physically and humanly possible; transmission between brain and body was not restored in flow because of vertebral adjustment, etc.

In answer to all this, we pointed to cases that came to us sick and went away well. All we did was adjust, etc. We cited cases as proof! It was ALL and THE ONLY proof we had. Peculiarly, the SAME proof was and is offered by every other method, regardless whether Christian Science, faith healing, massage, infrared rays, colonic irrigation, basic technique, etc., or what have you. They, too, have a percentage of cases who come sick and go away well. Due to many incongruous uncontrollable factors such as the degree of condition, length of time standing, age of person, method used, stay of case with practitioner, etc., it is difficult if not impossible to establish an efficiently accurate comparison of results and percentage thereof due to any method. How sick they were when they came, how much improved or how well they were when they left, are subject to impossible compilations. The answer, if there be any, lies entirely within inconsistent realms of border-line vagaries of idiosyncrasies of the estimation of the case itself; which might be true, close to being true, or far from truth. Thus, ALL methods and professions find themselves at the mercy of the mentally and physically sick whose opinions are at best largely impossible because unreliable. Is medicine more efficient than Chiropractic? Is Chiropractic more efficient than medicine? Who knows? Each claims it is. Where is the one universal, sound, sane, competent, and efficient yard-stick?

Even as well-defined professions, working on a known well-defined principle and practice such as medicine or Chiropractic, they find themselves subdivided into many smaller groups, working either in or out of a maze of complexities. Our people are in a dilemma of opinion between the efficacy of this or that method in contrast to others; oftentimes Chiropractic itself being shelved temporarily while something else is given first credence. One uses one method and he thinks it is the eureka of the hour. Another finds that method useless after long and exhaustless

trial in practice. And so all run the gauntlet of modalities and method of treatment and/or adjustment. One is tried and discarded; another comes and is sooner or later in the discard. This fluctuating series of sincere and honest experimenting opinions, regarding Chiropractic as ONE method in contrast with other modalities, as used with or without, in conjunction or in separation, has created a motley complexity of opinions amongst us. We know and you know that, given 100 years, the useless will be out and the useful will remain. Instead of solving this problem of right and wrong on a possible known and proven basis NOW, we have permitted ourselves to become messily involved into the dogmatic disputation of personalities, for one individual as against another. Individuals have nothing to do with the ultimate issue. Gamelin said: "Never get angry at facts, for they are entirely indifferent to your opinion of them."

What a mess commercial electricity would find itself in if it were to pursue its development as Chiropractors have done; if there were a series of personal controversial articles raging between electrical trade journals; if Edison should attack Telsa, and Marconi rage against Steinmetz — each having his pet peeves and the entire electrical structure rising or falling because of partisanships between followers, taking sides, trying to settle issues of fact by each electrical worker trying to influence all others to his personal prejudicial opinions; few agreeing with each other; all pulling in various directions. This condition DOES NOT exist in electricity because it HAS a yard-stick; it HAS BEEN reduced to a scientific series of facts; certain laws and formulas have been definitely established because they work, anywhere, any time, with anybody who cares to work them.

Certain human factors are immutable, *prima facie*. Matter cannot move without energy to move it; this applies with equal force to human matter. The amount of energy to move a given quantity of matter must be equal to its task to be performed. It can be no more, no less. This applies with equal force to human matter. The amount of matter born of us is fixed. We can neither normally add more, nor abnormally subtract less. The amount of energy predestined for our use in us, is fixed. We can neither normally add more nor abnormally subtract less. All matter internal to us has a balance of energy internal to us to move it at a normal rate of speed. If force and matter balance, speed is nor-

mal and health is its equivalent. Sickness, ill-health, dis-ease enter only when the matter involved moves too rapidly or too slowly. The matter being fixed, the energy level is mechanically and energetically increased or decreased which unbalances its rate of speed of human matter action. These are primordial facts established in the beginning of things, by immutable law, which you or we could not change if we wished.

You and we, as practitioners, desire to reproduce health where sickness exists. We are aware of the unbalance between power and matter. We desire to reestablish that which once was, but is not now. Some think this can be done by arbitrary external and artificial means. To this and these ends we TRY this, TRY that, — Chiropractic amongst the rest. DO they reestablish health? We think they do, and because we think so we fight for the right to their use. We cite cases again and again, print testimonials to prove our contentions. And all of our professions HAVE testimonials. So do Peruna, Carter's Little Liver Pills, etc.

Many have been the times when you and we have desired TO KNOW, to quit guessing, fiddling about with various questionable things we knew little about, how they acted or why, hoping that some day A YARD STICK could and would be established by which ANY OR ALL METHODS could and would be tested.

Are these methods you now use all you think them to be? Are they what the patient thinks; what he hopes to get; which he believes you have for him, desires to buy — health? IF YOU KNEW they worked, you would continue their use with absolute confidence because you would have unquestioned scientific facts to prove your position. If YOU KNEW they did not work, would you continue their use? We doubt it!

We are approaching this problem as one who desires truth. If you live only for money, irrespective, regardless of what you do or don't do to your patient, whether he gets better or worse, remains sick or lingers on with what he had when he came, and establish no conclusions of facts to guide your endeavors from year to year, then what we have to say further will not interest you. If, on the reverse, your ultimate objective is to study and concentrate on that or those methods which DO restore health, on which you can positively establish facts to guide your daily work, then what we have now to say will interest you seriously and sincerely.

If the human brain generates the entire output of energy to run all the human body; and if the nervous system transmits that given quantity of human energy between brain and body; and thru them you have a flowing quantity of human energy connecting all parts of brain with all parts of body, and all parts of body with all parts of brain on a return circuit cyclic system, and your body utilized that given normal quantity of human energy; and then you introduced a meter measurement method at either the brain and/or nerves and organs, and that meter measurement method registered that given normal quantity of flowing energy, you could tell EXACTLY the output of brain; EXACT quantity flowing thru nerves; EXACT input in organ or organs under measurement; EXACT amount of function performed at periphery of those nerves. If, in addition to the meter measuring method, you introduced a recording device which produced a running graph wave pattern of that human energy quantity, regardless of whether at brain, nerves, or organs, you would have a permanent VISIBLE graph record of production at epiphedral beginning, flowing thru nerves and function at peripheral ending at organ. If that current generation, flow, or function varied, either increased or decreased, your meter would measure and register the change, up or down, and your recording device would give a permanent visible record of those changes, be they slight or great, and the time each took place and the time it took to make the change; thus proving WHAT DID WHAT, AND WHAT HAPPENED when any method was used. You would not need guess or estimate in imaginary terms what you hoped or believed was occurring. In this way you COULD and WOULD KNOW whether one method was efficient and another was useless.

We are doing today exactly what electricity has done to eliminate its "bugs." We measure human energy values, discard useless theories that are untenable, and hold fast to those that prove themselves capable of accomplishing the ultimate objective, viz., restoring health. Isn't that the practical approach to our problem of solving disputes which have separated us into many camps? Isn't it better if there is a way of eliminating guesswork, making the getting well of sick a practical and substantial business on a par with any other?

Are you interested in knowing what our research has proved? Assuming you are, may we proceed to give straight-from-the-shoulder conclusions with utter disregard of where they arrive?

We seek to restore HEALTH to the sick. None of us are so shortsighted as to believe that to fail is to succeed. All of us are sufficiently hardheaded business people to know that to succeed is to accomplish our objective. To restore HEALTH we must regain balance between human energy and human matter; between energy WITHIN the body to matter OF that body. To restore HEALTH does not mean to add ten feet more to the bowel, to add a sixth lobe to the liver, or to attempt by some extraneous means to add more energy to the already sufficient quantity now within that body; but to see that ALL energetic and organic factors now present internally, naturally balance themselves, by themselves, without interference.

There are only three possible fundamental avenues of approach to this possibility: First, the dis-ease is an error of thot and the avenue of approach is thru prayer from an outside source to correct that error. Grant this philosophy is sound, this avenue is impractical IF there is an obstacle of interference between source of power in brain and its expression in body. Second, the fundamental medical principle of utilizing some external method to stimulate or inhibit that already decreased or increased quantity flow, below interference, and thus hope to some day in some way bring about a change by means unknown, which would artificially create a balance. The net result of all this inconsistent use of this inconsistent principle is that external artificial methods are used which stimulate an inhibited condition; or inhibit a stimulated condition; thus forcing up or down to an arbitrary scale, a temporary change which ameliorates effects. All this can be done in thousands of ways with modalities of endless characters. The principle and practice, regardless, remain the same as a net result in the final end, as our research tests so amply prove—it temporarily relieves but **IT DOES NOT BRING ABOUT PERMANENT HEALTH**. The third fundamental principle is to correct interference to natural internal flow of energy between brain and body, permit force already within that brain to flow freely below interference now removed, so it can reach periphery of those nerves and thus **RESTORE** permanent health to all parts of the body as all parts of the brain reach all parts of

the body thru all the nervous system with its flowing forces between one and the other.

In measuring and recording reactions of human bodies to drugs and treatment modalities of varied and multiple kinds, we found they do one or the other of two things: they either stimulate a supposed-to-be inhibited condition, which at best is an arbitrary conclusion of diagnosis, or they inhibit a supposed-to-be stimulated condition, which at best is also an arbitrary conclusion of diagnosis.

By introducing the meter measuring method of energy flow at either the brain, nerves, and/or organs, and having that meter measurement record the given quantity of flowing energy both before and after the use of various methods, we know EXACTLY the increased or decreased output of the brain; the EXACT minimum or maximum effect on the flow of nerve force energy thru nerves; the EXACT increase or decrease input in the sick organ or organs under measurement; the EXACT amount of function we NOW KNOW which has been stepped up or lowered down, and how long such lasts, being performed at the periphery of nerves. The introduction of a recording device produces a running graph wave pattern of that energy quantity, regardless of whether at brain, nerve, or organ, and we have a permanent visible record of change at epipheral beginning, flowing thru nerves and function disturbed or changed at organ afflicted. The meter registers and the recording device gives a record of the time each took place and the time it took to make that change, how long it lasts, how soon it returns back to where it formerly was, and whether the drop is perceptibly better or worse than before, etc., thus proving WHAT DID WHAT, AND WHAT HAPPENED when any particular method was used.

In a former statement, we had occasion to raise some pertinent questions, stating that we would answer them, based on research carried thru along scientifically practical lines. Let us, then, present the pertinent answers to those pertinent questions:

Example: Tooth is aching. Let us measure and record energy flow to aching tooth now in pain. Now let dentist inject novocaine. In a few moments patient KNOWS he feels no pain. What the dentist wanted was to desensitize the tooth. He did. What the patient wanted was to have the pain killed.

But what neither knows is WHAT DID EXACTLY HAPPEN. Let us let the electroencephaloneuromentimpograph continue to make its record of this case — during pain, at time of injection, and after injection. What does meter register; what does record show? That the AFFERENT FLOW OF ENERGY BETWEEN TOOTH AND BRAIN HAS BEEN BLOCKED OFF so brain gets NO sensations of ANY feeling. All that happened was the dentist artificially and chemically BLOCKED OFF flow.

The purpose of all modalities is to stimulate an inhibition, or to inhibit a stimulation. All methods which stimulate do so up to a certain point; from that on, they drop rapidly into inhibition. That is why it becomes necessary, in time, to increase the dosage of treatment to still try to attain the same value of efficacy in results. All methods which stimulate do so temporarily, but they also drop into the blocking of energy flow sooner than later, and there it begins to become chronic. That is why the dosage continuously must be increased. All methods which inhibit a stimulated condition do so by blocking directly, at once. Sooner or later the blocking becomes more or less permanent and the arbitrary dosage can be reduced even tho at the expense of the absence of the original function which has been stimulated. In either event, stimulation or inhibition works by blocking on either the afferent or efferent side of the nervous cycle from brain to body, or body back to brain. Some drugs and treatment methods work directly and only on efferent or functional side; others work directly and only on afferent or sense side. Which is which, is quite well determined with drugs. Which is which, is determinable with a modality only experimentally, for it often reacts opposite to end desired, destroying objective sought. Stimulation or inhibition, as theories of cure, both lead to inhibition of that nerve energy flow which is necessary to lead to cure. Is inhibition the objective sought, knowing full well that dis-ease IS inhibition? Can more of the opposite be secured by creating more of its like? Can there be cure of disease, knowing IT IS inhibition, by producing MORE inhibition? Reason should supplant theoretical experiment. Reliable knowledge supplants unreliable hope.

If you KNEW that the method you use eventually brought about a blocking of nerve force flow, would you desire to continue or persist in its use? We have serious doubts. Without

tangible evidence as proof, you continue to do what you think is best for your case. WITH this information, you can be forewarned to use such methods with utmost caution, for methods which increase blocking nerve force flow lead to serious consequences, gradually reducing the flow. The surgeon uses it when he gives a local anesthetic, or gives spinal injection to block off afferent sense feeling for abdominal operations. When a patient falls, breaks his back, and becomes paralyzed, what happens is that the fracture blocks off efferent function nerve force flow below the fracture. A vertebral subluxation blocks efferent flow and thus creates dis-ease. It is upon this principle and practice that Chiropractic is fundamentally based. So further blocking nerve force flow by intentional modality treatment under the guise of RESTORING that flow, hoping to get the case well, is a dangerous conclusion not true, and is a dangerous method whether innocently or knowingly used.

Resistance, according to medicine, is vital to health. Resistance, according to medical men, is essential to protect the body against invasion against cold, germs, infections, catching febrile disease, etc. To block off any efferent energy flow, regardless of method used, is to LOWER resistance and make invasion easy and more possible. If there BE value in spreading of disease by infection; and if infection be made possible by lowered resistance; and if blocking afferent energy flow lowers resistance, then every medical drug is an aid to that end, for every drug given is either a stimulant or an inhibitor, and both block efferent energy flow which lowers resistance which makes infection a reality. If there BE value in infection of any kind, in any way, it is vital to keep resistance up to par, meaning thereby to PREVENT blocking of any efferent energy flow. If this be sound, then any method which stimulates which eventually leads to blockage; or any inhibition which blocks at once, is a DANGEROUS procedure because it DOES lower resistance and makes invasion and infection thereby more prevalent and more possible. Medical men say "build UP resistance" to prevent "catching disease," and then give drugs which LOWER resistance and make disease more possible. Chiropractic believes in the necessity for resistance and makes it possible by RESTORING the natural internal normal flow of efferent energy quantity that resistance may become the natural function occurring therefrom. Chiropractic is a

builder, not a destroyer. Chiropractic is consistent in both cause and effect, principle and practice. Medicine advocates one theory and denies it with another.

Man is the same; disease is the same; cause must be the same; cure must be the same, down thru the centuries. That man has stumbled and floundered in his desire to know, and has dismally failed, is because his fundamental approach to the problem of measuring and recording human energy flow was never known. There IS a common denominator for all professions, for all methods, to prove their value or lack of value in the problem of getting sick people well.

Interpreting graph wave patterns brings forth new laws. There frequently appears to be an inverse ratio between brain quantity generation and physical quantity expression. Less brain generation epipheral graph wave pattern appears to equal more body expression peripheral graph wave pattern. Putting this thought in another manner of interpretation: less normal brain generation equals more abnormal body expression. This is quite noticeable with a low quantity of brain grand-mal spasm pattern as expressed with a high quantity of body grand-mal expression pattern.

Function is divided into two control factors:

- a. power quantity
- b. intelligent factor. Function can be strong or weak, minimum or maximum, the wave pattern varying accordingly, according to whether power and/or intelligent factors are equal to each other or inverse to each other, i.e.,
 - a. plus power with minus intelligence; or,
 - b. minus power with plus intelligence, both of which could be in brain generation

thus physically expressed; or either one could be plus or minus in body expression because of being minus.

Matter without energy would be inert. Energy without matter would be an abstract. Energy IN matter WITHOUT direction would be chaotic.

The graph wave patterns never represent matter entirely devoid of energy—some always being present. However, whether quantity of energy present is up to normal par, is vital

in the study of graph wave patterns. It is also vital to study the degree of the intelligent factor present, balanced with the quantity of energy present, which is also manifested in the interpretation of graph wave patterns.

If par matter is balanced with par power and par intelligent control, each to each other, function would be normal in generation, flow, and expression. Some graph wave patterns exhibit a high or low quantity of power. Other graphs exhibit a high or low quantity of intelligent control. One or the other can be high or low, in inverse to each other, or reverse to each other, and upset the par functional balance.

Many neurophysiologists are beginning to or have already construed function as the interpretation of encephalograms as one of power volume only. More than that is concerned and involved, regardless of whether biped or quadruped.

The power control of function flows in, on, over, or thru nerves. The intelligent control of function becomes superimposed into, on, over, or thru the power control in, on, over, or thru nerves. If one or the other falls short, or extends beyond its par level to each other, then the balance point becomes unbalanced and function becomes abnormal at its peripheral expression, one or the other attributes predominating over the other. The vital question is to read and interpret the graph wave patterns that one can be separated out from the others and disseminated between, and yet considered with and as a part of the whole.

So many men, so many minds, so many opinions — they can't all be right — or wrong.

Which IS right? Which IS wrong?

That is something we determined to find AND PROVE.

In electricity there is dynamo, positive and negative wires that lead from and to it; and at periphery there is an electrical organ which performs the function for which intended. Dynamo generates a given quantity of electricity, which given quantity flows over, on, or thru wires to organ at distal end. If that quantity generated, flowed, and performed IS NORMAL, all is well.

There are TWO ways of KNOWING:

- 1st. If function AT END is normal.
- 2nd. By MEASURING quantity generated, flowing, and being performed.

HOW can it be measured? By meter, and/or by a RECORDING meter which efficiently, definitely, and accurately KEEPS A RECORD. This RECORDING METER can be at dynamo, on wires any place between dynamo and organ, and/or at organ itself.

On other hand, we can GUESS at what dynamo is generating. We can GUESS what is going thru wires. We can GUESS what is being performed in organ. After GUESSING we can TRY TO REMEMBER what we GUESSED. After TRYING TO REMEMBER WHAT WE GUESSED, we can create THEORIES as to WHAT HAPPENS about OUR GUESSING.

In living human being, there is an Innate Intelligence that propels brain dynamo to generate a normal quantity of nerve impulse. There are efferent and afferent nerves that lead from and to brain, and at periphery of those nerves there is a human organ which performs function for which it is intended. Brain generates a given quantity of mental impulse, which given quantity flows over, on, or thru nerves to organ at the distal end. If that given quantity generated, flowed, and performed IS NORMAL, human body is healthy and well.

There are TWO ways OF KNOWING:

- 1st. If function AT END is abnormal and patient feels it so;
- 2nd. By measuring quantity generated at brain, flowing between brain and performing in organ.

HOW can it be measured? By correct, efficient use of the electroencephaloneuromentiograph meters; and by BEING RECORDED, which efficiently, definitely, and accurately KEEPS A RECORD. Electroencephaloneuromentiograph RECORDING METERS can be at brain, or nerves, any place between brain and organ, and/or at organ or organs themselves.

On the other hand, we can GUESS at what brain is generating. We can GUESS what is going thru nerves. We can GUESS what is being performed in organ. After GUESSING, we can TRY TO REMEMBER what we GUESSED. After TRYING TO REMEMBER WHAT WE GUESSED, we can create theories as

to WHAT HAPPENS about OUR GUESSING, after which we can create techniques galore and GUESS at what WE TRY TO REMEMBER we hope they MIGHT do.

Function of The B. J. Palmer Chiropractic Clinic is TO KNOW, not guess; have adjustment at right place, in right manner, at right time, which PROVES to accomplish the one simple objective — to re-establish perfect normal quantity flow between brain and body.

If Chiropractic principle be correct — and we are convinced beyond doubt it is — there is one way to prove or disprove it, viz., measure and calibrate quantity flow of nerve force between brain and body.

'Timpograph does just that!

Chiropractic is premised on simple principle that any reduction in quantity flow of mental impulse supply between brain and body slows down action of that organ or organs in which reduction occurs. Any reduction in speed of tissue cell action creates dis-ease. Correspondingly, when ONE organ SLOWS down, another organ adaptatively SPEEDS up action; thus we get too much action as an adaptative measure, and too little action as a physical dis-ease.

To measure SLOWED DOWN supply is to find THE cause of ALL dis-ease. Hence, a specific would result. We here today HAVE found what the world has been seeking for thousands of years, viz., A SPECIFIC for THE CAUSE of ALL dis-ease. When THAT is found, correction of that cause is simple. All this has been forcibly brot forth in our printed talk, IT IS AS SIMPLE AS THAT! (See Vol. XXII. Palmer, 1949.)

Between knowledge and KNOW HOW we have in our profession, is to have a multiplicity of multitudes of methods, theories, hypotheses, treatments of varied kinds, etc. Which right, which wrong? It is no longer a question of conjecture, a diversity of opinions, a difference of judgments. We have taken many ideas, theories and systems into our labs and measured WHAT THEY ACTUALLY DO TO INCREASING OR DECREASING NERVE FORCE SUPPLY BETWEEN BRAIN AND BODY, BOTH BEFORE AND AFTER APPLYING THESE SYSTEMS OR METHODS.

We have tested these methods, we have tested the stimulative and inhibitive results on nerve force supply, by measuring effects of various drugs, liquors, fluids, baths, massages, treatments of various modalities. In ALL instances we found that where stimulatives were used first, they boosted flow; but by using a continuous measurement for hours, we have ALWAYS RUN INTO AN INHIBITIVE PERIOD. Where inhibitive methods were used, they increased inhibition only to recover back to normal at a very slow rate of speed. IN NO INSTANCE have we found ANY stimulative or inhibitive method RESTORING NERVE FORCE SUPPLY back to normal.

By measuring flow of nerve supply, both before and after adjustment, WE KNOW exactly what happens because of what we did, at time we did it, in manner we did it — as previously determined by research in other labs.

"Timpograph represents an outlay of \$65,000.

It takes four to conduct its research on our cases.

Let's glance for a moment at an electrical set-up — generator, wires, and motor. How much current is a generator generating? We could GUESS, you could guess, one hundred could guess, and all might guess right or wrong. Somewhere between, some might guess nearer right than others. No matter who GUESSED, any conclusion was an accident, a mental quirk peculiar to individual doing guessing.

How much current is a wire conveying? One hundred could guess in same manner as with generator. Same would be true as regards how much horse power output was occurring in motor.

Same is true as regards brain as human generator; efferent and afferent nerves as conveyors of that energy from brain to body; and muscles as motors, and how frequently they contract and relax, thereby performing motion.

How much energy is brain generating for all the body or certain portions of it? We could GUESS, so could you, and all might guess right or wrong. No matter who GUESSED, any conclusion was an accident, depending upon ability of one who guesses.

How much energy does efferent nerve convey from brain to body? Guess as much as we please, it would still be a guess. Some MIGHT guess right; all rest might be miles from fact—because ALL guessed.

How much of normal action, motion, function, is expressed in tissue cell? We all have an idea, an opinion. We study symptomatology and pathology and THINK we know. Do we? Or is all a guessing process? Some might guess more nearly right than others. Others are going to go wide of the mark,—because all were guessing.

If ease is a question of normality of quantity action in tissue cell, then there must be a technique, means, and method of measuring that quantity. If dis-ease is also a question of abnormality of quantity of action in tissue cell, then there can be developed a technique, means, and method of measuring that reduced quantity and compare it with the normal developed or generated in brain.

There IS ONE WAY all CAN KNOW exactly, accurately, correctly, how much electricity IS generated in dynamo, conveyed thru wires, and how much horse power is developed by motor when in action. USE A METER that measures it.

We can ALL SEE and read meter. We can ALL AGREE with what graph recording meter proves.

Electrician does just that. He MEASURES, evaluates, calibrates, and graph records quantity flow. He has a graphing method that records what meter reveals. He has a permanent record of EXACTLY what is occurring.

Chiropractic PRINCIPLE is same as applied to human body. Chiropractic PRACTICE should be same as PRINCIPLE when applied to human body.

Electroencephaloneuromyotomograph does just that. It measures, evaluates, and calibrates quantity action in tissue cell. It proves which this or which that best releases pressure and restores abnormal transmission to normal transmission between brain and body. Electroencephaloneuromyotomograph PROVES which does it best by intention, and proves which does it least by accident. Electroencephaloneuromyotomograph PROVES where, when, how, and why each technique, means, and method

does or does not do what is claimed by promoters who guess at what they think.

Sixteen years' research — to 1951 — on thousands of cases, all kinds and types, hundreds of miles of graph wave patterns of recorded meter measurements, prove there are only eight possible vertebral subluxations. Four constants and four variables. They are all at occipito-atlantal-axial area. None exists anywhere else in spinal column. This technique, means, and method OF PROVING our PRACTICE is at such a variance to what we have previously taught, believed, and practiced, makes it so evolutionary, that it constitutes a revolution in minds of many of our people. Some adopt and adapt, and others pre-judge and condemn.

Thru years we have tested and proven or disproven MANY techniques, means, and methods as far less practical than others.

ELECTROENCEPHALONEUROMENTIMPOGRAPH is THE ONLY METHOD we know which records all producer-energy flowing facts, accurately, efficiently, electrically, which has not been questioned by scientific researchers; on reverse, has been endorsed and supported by all.

This instrument is in no sense a treating machine; does not supply anything from outside to inside;

—is strictly a scientific recorder of that quantity of mental impulse nerve force flow which exists inside under varying observed conditions.

Not only is recording, metering and measuring portion of this instrument accurate, but its method of pick-up is without variables, both internal as well as external to that body from environment.

We suggested that fundamentals between D. D. Palmer and Abrams were similar. Both established theory that disease was a lowered and reduced energy flow, which slowed up action of tissue cell structure.

D. D. Palmer knew this existed, only from a theoretical viewpoint. Abrams said he could measure it. Abrams tried to develop an instrument TO measure it. There was nothing scientific about his measurement methods or device. It never worked.

D. D. Palmer knew, as did Abrams, that patient could and would get well as lowered tissue cell structure was restored to normal energetic action, which could be done only if, as, and when normal energy value was restored.

D. D. Palmer knew this energy quantity was INSIDE the brain; was obstructed in its transmission between brain and body by vertebral subluxation; that once an adjustment was given and energy permitted to flow FROM brain TO body, patient would get well. Abrams thought he could develop an instrument which would give from the outside this energy needed to the body.

D. D. Palmer knew that energy needed to get sick people well was natural, was inside, and needed to come from inside TO outside. Abrams thought that energy needed to get sick people well could be manufactured artificially, externally; could be introduced from outside, given inside from outside.

It was THIS fundamental difference that made Abrams fail and D. D. Palmer succeed. Abrams never could develop or manufacture an instrument which could or would measure lowered energy value. D. D. Palmer did not need invent or manufacture an instrument to measure it because it was already natural and inside in proper and correctly measured value.

That's why ERA (Electronic Reactions of Abrams) failed — and Chiropractic succeeded.

Electroencephaloneuromyography was conceived, designed, and builded to supply an electrical, mechanical, automatic record of minute quantities of human nerve force flow. We demanded an instrument which would automatically record multiple channel findings, with accurate amplification without distortion.

Many years ago, we developed "meric system." At that time, it was based on a digital nerve-tracing research of living human bodies.

We would digitally trace tender nerves between spinal column and certain areas of body that possessed a dis-ease or pathology; or we would digitally trace paths of tender nerves between areas of human living feeling body that possessed a dis-ease or pathology, back to entrance of those nerves into spinal column.

Instead of attempting to trace fibres on dead dissectional anatomy, we worked exclusively on living body of patient who could and did cooperate with us as to path of a definite connected nerve that had feeling, which connected one location with other.

In this way we were able to solve many heretofore mysteries, unexplainable any other way.

For example: Nerves that issued from spinal column on left side of approximately sixth dorsal traced around direct to stomach;

—nerves which issued on right side of approximately sixth dorsal traced outward, around and under arm pit, up over outer chest on anterior, under clavicle, up to and split, going to both thyroids and thence on up to eyeballs. This distribution explained "exophthalmic goiter" wherein eyeballs, thyroids, and stomach troubles were frequently found in same case.

We continued this research for many years on thousands of cases, finally issuing Vol. XIII (Palmer) which was a continued series of photographs of cases traced. (This book is now out of print.)

At that time, all this was done to try to locate the place of exit of certain nerves, going to certain organs, to ascertain what we then thought was location of vertebral subluxation causing pressure upon those nerves going to those organs.

As a result, we "adjusted" at such places; and, as a result, attained an accidental percentage of cases well, attributing it to adjustment given AT these certain places. We called these "places" such as "stomach place," etc., according to organ those nerves went to. Out of this nerve-tracing work, eventually came our "meric system."

This "meric system" is as sound today as it was then, with this exception: instead of its BEING THE PLACE OF VERTEBRAL SUBLUXATION CAUSE OF DIS-EASE, it is today still the place of neurological distribution from spinal column to organs we found those nerves traced to. Today, we no longer look to these "places" for adjustment.

As ALL energy for body is generated or manufactured in brain, so do certain portions of brain generate or manufacture

all energy for certain portions of body. There is a liver lobe of brain that generates or manufactures all energy for liver in body. Same holds true of all other organs and viscera. This further holds good in the sense that from liver lobe in brain go forth all fibres that eventually go to and distribute themselves thruout liver in body, via spinal cord, spinal nerves, etc. Same holds true of all other organs and viscera.

Eventually, we developed what we then called THE SUPERIOR MERIC SYSTEM, after which we naturally called the lower or inferior distribution THE INFERIOR MERIC SYSTEM. Altho one entire and complete system, we arbitrarily divided it, to differentiate between portion that GENERATED energy, portion that TRANSMITTED energy, and portion that ACTED FUNCTION.

Upon advent of 'timpograph, we stepped back into that period of our research development, picked up superior and inferior meric system, and applied it as the basis for further research into scientific proof of direct connection between brain and body, via spinal cord and spinal nerves; AND generation, transmission, and expression of that direct continuity flow of energy between one and other.

Meric system, then, IS today (1951) THE BASIS of our neurological studies in the application of 'timpograph on our cases.

Without this basis, any work done with 'timpograph would be guess-work, done haphazardly, without systematization, without fundamental to begin or proceed with, and no sound conclusions could be reached to prove anything as to any connection between symptoms and pathology or their corrections, measurement, calibration, or recording same.

With this approach, we can now and do connect certain portions of brain with certain portions of body, by way of certain neurological distributions of certain nerves between them.

There is no other laboratory or researcher that so extensively or completely covers the total field of brain AND body, brain TO body, body TO brain, via nervous system, and hooks them TOGETHER to a definite and conclusive study of cause and cure of dis-ease proof, as we do here.

There are many who make encephalographs of brain wave patterns only, interpreting them only as they refer to pathologies; and this is mostly confined to epilepsies, brain pathologies, and a few isolated examples of trauma. No body work is done in any of them. And not one, to our knowledge, is connecting brain TO body and body TO brain, via nervous system; neither is there one which seeks further scientific insight into knowledge of proof of cause and cure of dis-ease; location or correction.

The vital question of QUANTITY of generation in brain, QUANTITY of transmission via nerves, QUANTITY of expression of function in organs and viscera, has been ignored. This IS fundamental upon which all that IS Chiropractic rests, hence receives extreme study here with our timpograph research.

To simplify understanding, we have worked out a language of code symbols to designate various phases of our work.

Electroencephaloneuromentimpograph measures and records minute degrees of mental impulse in eight or more places:

1. at source, the brain
2. at subluxation
3. at point where nerve emits from spine below subluxation
4. at any point between periphery and spinal exit
5. at periphery, on either efferent or afferent nerve fibres.

Recordings can be made before adjustment, immediately after, and at subsequent times, showing whether mental impulse has been restored at these various points and in what degree.

All function is expressed in degrees of quantity of energy, converted into quantities of motion of action, which pre-determines QUALITY of feeling.

Question of sense is interpreted by education, or Innate, into QUALITIES of sense. QUALITIES of feeling, seeing, hearing, tasting, and smelling are relative to each other. It is loud or soft, bright or dark or any shade between, bitter or sweet, pungent or perfume, etc.

In describing NORMAL sense we do so in qualitative terms, or terms which best describe QUALITY of sense. This is also true in expressing ABNORMAL.

A patient goes to a doctor who inquires as to HOW patient feels. All answers will be relative in QUALITIES. Pain is sharp and acute, or dull and lethargic; seeing is dim or blindness; hearing is hyperesthetic or hypoesthetic; no taste at all or reversed to what they are, etc.

It is an impossibility for any doctor TO KNOW how much pain patient suffers. If case is inclined to be slightly off mental balance, slight pain becomes an intense pain, exaggerated. Another case, being on melancholic side, may have great pain and feel little of it, and say so. Same is true with all senses.

We have said before, and we repeat: anything that exists IN REALITY is subject to measurement. Every symptom THAT EXISTS is subject to being calibrated and measured; to do so requires that QUALITY BE CONVERTED INTO QUANTITY. Many researchers have said this was impossible. We said nothing was impossible to do which existed in fact.

Human eye is able to differentiate possibly a dozen colors with any degree of accuracy. Shades it can describe are few. Few people can describe a certain color, to another person, wherein second person can see the color as first person describes it. QUALITY of understanding in mind of first person is not readily described and transferred to mind of second person. Science, however, has stepped in and can accurately establish, prove, and duplicate over two thousand "colors" or shades thereof. How? By measurement, not of QUALITY but of QUANTITY. Color is a QUANTITY vibration. Measure QUANTITY accurately and you can DUPLICATE that quantity at any time such quality is desired.

Same is true with function or feeling. While sensed as qualities, they are performed and interpreted as quantities.

Innate sends forth QUANTITY of energy which expresses QUANTITY of function at periphery of nerves. QUANTITY of vibration occurs; QUANTITY of impression is carried to brain, where mind interprets QUANTITY of feeling; and in return, adapts QUANTITY of energy to be sent forth efferently to meet emergency externally.

That is what we do here. We MEASURE QUANTITY of feeling and tell how much "pain" pain is, etc.

Dr. R. H. Kuehner tersely put it, when he said:

"This instrument proves the following points:

- "1. That a live man has a measurable life-constant with a measurable neuro-electrical frequency
 - "2. That a dead man has NO measurable life-constant with a neuro-electrical frequency
 - "3. That a sick man has a measurable life-constant with a disturbed neuro-electrical frequency
 - "4. That a disturbed neuro-electrical frequency is why a sick man is sick
 - "5. That a disturbed neuro-electrical frequency is caused by a vertebral subluxation in the spinal column
 - "6. That a correct, scientific adjustment of the vertebral subluxation restores a normal neuro-electrical frequency
 - "7. That there is no other method but an adjustment on the subluxated vertebra that can and does restore a normal neuro-electrical frequency
 - "8. That the treatment of effects either mechanically, electrically, or chemically, disturbs both the measurable life-constant and the disturbed neuro-electrical frequency."
-

BY-PRODUCT — PRODUCT — PRODUCER

1st. We began our study of quantity flowing energy with its BY-PRODUCT — sound

—we amplified it 2 million times in sound, recorded on sound track of motion film.

—we saw graph wave pattern thru a 9" oscilloscope which was permanently recorded thru a specially-built motion picture camera.

2nd. We stepped up to study of PRODUCT — motion

—each cell in motion had a vibration

—we amplified it 2 million times in sound

—we saw graph wave pattern thru 9" oscilloscope which was permanently recorded thru a specially-built motion picture camera.

3rd. We finally reached back to PRODUCER ITSELF—current flow direct.

Normal current flow is five-millionths of a volt or less

—usually less because not normal

—amplified 400 trillion times

—we ran into two major issues

a. to amplify without distortion

b. to use multiple channels without cross-channel feeding.

We now use 8 separate individual channels.

—8 circuit channels being placed on 8 arbitrary simultaneous places

—9th channel second clock timing device.

—9th push-button channel for calling particular attention to any unusual features.

Two methods of amplification and recording:

a. Five 3" oscilloscopes, one for each recorded channel

—specially-built and specially-timed electric motion picture camera

—in this part of instrument is clock-timing device which clicks off 120 times per second interval which records on sound track of film

b. Seven channels of ink-writing oscillograph

—in this part of instrument is clock-timing device which clicks off every second on ink-written record.

We have commercial kilowatt hours. So do we now have "human mental impulse seconds".

In this way, we time quantity flow in, thru, or between eight arbitrarily placed sets of electrode pick-ups of energy flow between points.

Of all instruments covering this field of research,

—124 are single channel instruments

—2 are two-channel instruments

—1 recently installed (Jan. 1940) in University of Iowa Hospital is a four-channel

—1 nine-channel and still the only one of that magnitude in the world.

This equipment is not popular, because of expense — approximately \$65,000 — and because it requires an operating crew of four scientifically-trained people to produce records.

EXTENT OF MEDICAL RESEARCH INTO OUR CHIROPRACTIC FIELD,

—within past 8 years

—1620 medical scientific researchers (11/13/42)

— 168 medical scientific institutions (11/13/42)

— 480 medical scientific publications (11/13/42)

—1555 major medical articles quotations (11/13/42)

have approached this physiology and sickness problem and its solution.

If it were ONE scientist, ONE institution, or ONE publication, it might be a coincidence.

If it were three or four — isolated from each other — it could be a happenstance.

But when there are 1620 scientists, 168 medical institutions, and 480 publications

—compiling and co-ordinating their medical work

—to a definite Chiropractic objective

—of solving the cause and cure of dis-ease,

it proves which way they are directing the future

—in interpreting our Chiropractic principle and practice into medicine.

A further break-down of 1555 major medical article quotations, from research of 1620 scientists, 168 medical institutions, and 480 medical publications, lists 710 diseases **AS CAUSED BY INTERFERENCE TO NERVE FORCE FLOW**, which run the gauntlet from epilepsy, resistance to infection, scarletina, brain tumors, regulates bile secretion, ulcer of small intestine, cancer, schizophrenia, paralysis, degeneration, optic atrophy, baldness, goiter,

poliomyelitis, eruption of skin, necrosis, Parkinson's disease, pleurisy, constipation, angina pectoris, genital disturbances, hiccups, acromegaly, progressive muscular atrophy, loss of vision, color blindness, adrenal insufficiency, deafness, arthritis deformans, gout, meningitis, imbecility, paresis, to loss of sexual power, etc.

Some diseases listed, many Chiropractors say Chiropractic does not reach. Many of these 710 diseases listed by medical men as caused by nerve force flow interference, many Chiropractors ascribe medical causes to; would not think of ascribing the Chiropractic cause to; would not think of trying Chiropractic for — yet, medical men are proving it. Will complexed medicine some day reach the simple Chiropractic specific? They are on their way!

This group of 1620 medical scientists, though small compared to their total numerical strength of 150,000, is larger in proportion of being for Chiropractic, than is larger group in Chiropractic who DENY Chiropractic and AFFIRM medical causes to same list. As small as medical group is, it has gone further in proving, and using Chiropractic than has total numerical strength of Chiropractic profession who use CHIROPRACTIC for some of same 710 diseases.

Analysis of these works and writings shows that much work has been done on:

- a. removed sections of animals
- b. live animals under anesthesia
- c. mammalia under varying conditions
- d. removed sectioned nerves of animals and humans
- e. bodies of animals and humans under electrical excitation and stimulation, watching reactions
- f. sections of humans, such as brains, heart, etc.
- g. pathologies of humans with such as schizophrenia, epilepsy, etc.

TO DATE

—there is ONE CHIROPRACTIC scientific researcher
ONE Chiropractic scientific institution
ONE scientific publication

—that approached these same problems and their solution.

If there were only ONE Chiropractor, ONE Chiropractic school, or ONE Chiropractic publication

—which was getting AWAY FROM Chiropractic

—and was adopting principles and practices of ancient medicine

—it might be a coincidence.

If there were three or four of such

—isolated more or less from each other

—each working independent of any knowledge of way another was working

—it could be a happenstance.

But when we find thousands of Chiropractors,

—groups of state associations

—groups of State Boards

—a national association

—banding together to further a deliberate campaign and program in that direction

—compiling, coordinating and publishing their work

—to a definite objective of reducing Chiropractic to a minimum

—and building medicine to its maximum in our ranks

—to further a commercial, financial cause and cure of treating disease

—it proves which way our Chiropractic movement is being directed

—in interpreting “chiropractic” as an

—OLD principle and practice of medicine.

Chiropractors seem determined to prove that the rapidly discarded principles and practices OF MEDICINE contain the secret of cause and cure of disease. If we can reach medical evidence and proof FAR enough, we may SOME day convince Chiropractors that MEDICAL men are convinced that the CHIROPRACTIC principle and practice is the CORRECT explanation for cause and cure of disease; then we could use convictions of medical men to convince Chiropractors that the Chiro-

practic principle and practice is the correct explanation for cause and cure of disease; anything good for medicine ought to be good for Chiropractors; anything correct for THEM to use, ought to be good enough FOR US.

Some day, when medicine has become Chiropractic, Chiropractors may then adopt medicine.

AS RESEARCHERS, we approached these problems with the D. D. Palmer concept.

Research proves:

—a spiritual, electrical, mechanical, chemical background of a knowledge of Innate Intelligence mental impulse flow.

We studied and analyzed causes. We converted medical qualities to Chiropractic quantities

—then measured, calibrated, and evaluated quantity.

There is no efferent function or afferent sense; no quality or any abstract that can't be broken down from quality to quantity, and then measured;

—direct brain-cell-to-tissue-cell continuity; tissue-cell-to-brain-cell continuity nervous system

—brain to efferent nerve, efferent nerve to body, body to afferent nerve, afferent nerve to brain cyclic quantity flow

—all tests and research made in a clinic on actual clinic cases, under functional or pathological diseased conditions

—under a multiple channel comparative method of testing simultaneously in same sick body

—on actual cases, week after week, with one week compared against another; before, during, and after adjustments, to prove or disprove meritorious or deleterious value of what we do, where we were doing it, in way we were doing it, under conditions we were doing it as ascertained by other scientific research in other labs in our Clinic

—a cause inside and cure inside

—internal restoration of transmission as our basis of observation of method applied

—quantity flow of internal energy as predetermining factor.

As a practical illustration:

How can a patient express HOW he feels, and where, except in terms of quality?

How "sharp" is "sharp" pain? How "sick" does "sick man" feel? How describe quality of headache?

How else can a physician secure information from a patient, than to ask questions bearing on quality?

It is not necessary for Chiropractor to ASK patient or for patient to INFORM Chiropractor HOW he feels, or how "sharp" pain is, how "sick" he feels, or how bad headache is.

Chiropractor can now secure ABSOLUTE information from patient, by automatically and mechanically recording data on QUANTITY of mental impulse flow which predetermines function upon which qualities are by-products.

To know producer, is to know its product and by-product!

Having established some of our postulates, premises, and principles

- we stepped back some of the time, in our research work, to
 - PROVE OR DISPROVE value of their observations and studies
 - PROVE OR DISPROVE effects of drugs—whether they cured disease or just stimulated or inhibited function
 - PROVE OR DISPROVE whether stimulation or inhibition had lasting value or where either or both led so far as health lasting value to case was concerned
 - which side of cycle function flowed from and on, and how drugs affected it
 - which side of cycle sense flowed from and on, and how drugs blocked "pain", etc.
-

RESEARCHING QUANTITY FLOW OF MENTAL IMPULSE NERVE FORCE SUPPLY

- studies normal and abnormal adaptive quantities

- studies normal and abnormal quantities, in health and dis-ease
- studies abnormal quantities as result of vertebral subluxation as well as restored normal quantities as result of vertebral adjustment
- studies how resistance to transmission produces interference to quantity flow; effect of absence of; its effects in pathologies
- studies efferent and afferent quantity flow of cyclic currents between brain and body
- studies origin in brain, expression in tissue cell, and interpretation in brain cell.

Each case enters as an unknown variable energy quantity problem.

Each case has a constant energy quantity solution to be solved.

Each case enters as a functional or pathological reduced quantity nerve force mental impulse supply flow.

What that below-par unknown energy level is, nobody knows until we make first record.

Each two weeks thereafter, a duplicate record is made, under exactly same conditions as to placement, efferent or afferent fibres, etc.

Each case establishes his or her frequency, duration records per second.

Each case has a carrier wave which contains certain isolated superimposition graph wave patterns.

Each two weeks those are compared with previous weeks.

If case quantity flow INCREASES, graph wave pattern carrier wave smooths out.

If case quantity flow DECREASES, graph wave pattern carrier wave frequency and duration periods of superimposition become worse.

Method of approach to solution and conclusion of problem under test, is exclusion of certain issues which do not work, and inclusion of those which do; thus by exclusion and inclusion we reach a conclusion of fact.

WE KNOW, from week to week, exact mathematical measurement of energy increase or decrease;

WE KNOW from week to week, whether case is getting better or worse

—as direct result of a certain adjustment

—given at a certain location

—in a certain direction

—in a certain way

—based on determination of information secured in use of certain constants from other labs.

In this way, we include or exclude facts which predetermine necessity of action in other cases.

THE HUMAN CARRIER OR PULSATION WAVE

1. The carrier or pulsative wave is found in all human graph wave patterns both normal and abnormal.
2. The carrier or pulsative wave is subject to isolation in all human graph wave patterns both normal and abnormal.
3. The carrier or pulsative wave is subject to isolation on both efferent and afferent side of nerve-circuit in all human graph wave patterns, both normal and abnormal.
4. In every case of "similar" traumatic cause, functionally and pathologically "similar", there would be a "similar" graph wave pattern, allowances being made for differences in interference, symptomatology or pathology; impressions, interpretations, etc.
5. For every opposite type, where "similarities" of traumatic cause, functionally and pathologically "dissimilarity" exists, there would be a different graph wave pattern, allowances being made for degree of opposites in differences in interference, symptomatology or pathology; impressions, interpretations, etc., the complete normal rarely being present.

All else we want to know about quantity of energy flow is superimposed into, over, and thru the mental impulse nerve force carrier or pulsative wave.

Reason for referring to "carrier OR pulsative wave" is that we are undecided whether nerve force flow is alternating or direct current. To call it a "carrier" wave indicates it might be alternating. To call it a "pulsative" wave indicates it could be direct.

There are occasional bits of evidence which indicate that carrier wave is an alternating current. On some graphs we find both efferent and afferent on same wave pattern. For most part, however, it runs true to one direction or the other in entire wave pattern, indicating it was a direct current.

We have isolated 21 graph wave patterns to date
—there are more to be deciphered and solved.

We had to establish a new method of measurement of quantity flow

- frequency of oscillation, per second of time, per case, which varies from 2 to 40.
- maximum and minimum of each oscillation per second of time, per case, as a determining factor of quantity force flow.

In interpreting electroencephaloneuromentimpograph graph wave patterns, we have following items to consider:

- a. frequency of oscillation, whether 2 or 40 per second of time
- b. maximum or minimum of oscillation, whether one-third above and below; one-half above or below, etc.
- c. duration of superimposition on carrier wave, per second of time
- d. beginning and ending median line of carrier wave
- e. how much totality of graph wave pattern is above or below median line, per second of time.
- f. superior and/or inferior mean energy line graph wave patterns, per second of time
- g. superior and/or inferior break in energy line graph wave patterns, per second of time
- h. comparisons of one graph pattern with other seven, taken simultaneously, as of same or different circuits; as of one brain and viscera pattern, etc.
- i. comparisons of one week's graph with others taken previous weeks, as any of above conditions change and why.

Time-lags in flows are important.

- healthy people have rapid flow; sick people slow flow
- vitality value can be checked by speed of travel of nerve energy supply between brain and body
- if a person were healthy above waist line and paralyzed below, speed would be normal above and slow below
- “nervous exhaustion”, “neurasthenia”, “nervous prostration” are terms which now have definite meaning because they are conditions which can be mathematically measured.
- “mental message”, “functional purpose”, “intellectual intention”, and words of similar import now have definite understanding, meaning, and application.

By measuring FREQUENCY, COMPLETION, AND DURATION of mental impulse nerve force flow, over a gross footage, per case, we establish a mathematical quantity of normal or abnormal functional potential present in that individual.

These studies develop and more than prove the D. D. Palmer principle and practice, today, into definite, accurate, precise working knowledge.

Our vow, made when a boy and WE FOUND OURSELF.

The world has long sought and searched for THE specific for THE cause of dis-ease.

It remained for D. D. Palmer to lay down THE PRINCIPLE of that specific.

It remained for B. J. Palmer to lay down THE PRACTICE of that specific.

It also remained for B. J. Palmer TO PROVE the principle AND practice of that specific.

The world is not ready to receive and accept, adapt and adopt that for which it long has sought and searched.

True to history, ones who SHOULD accept FIRST will be LAST; and ones who SHOULD accept LAST will be FIRST.

What medical men discard, Chiropractors pick up. Why?

What Chiropractors discard, medical men pick up. Why?

History repeats itself!

People who should be last to adopt medical principles and practices, will be first to adopt and adapt them;

—people who should be last to adopt Chiropractic principles and practices, will be first to adapt and adopt them. Why?

Because practice over fence is greener!

BLOCKING

If we were a Chiropractor and desired to practice methods other than Chiropractic, we would like to KNOW:

1. Has this other method PERMANENT value?
2. Is its palliative or remedial value temporary?
3. Has it any curative value at all?
4. When salesman tells it does this or that, WHAT DOES it do?

Suppose a salesman told you he could do this or that to your globe and make it give more light; or he could level off base of dynamo and it would thereby produce more electricity—you'd want him to make good, or prove his case before you bought.

HOW could he PROVE his case?

HOW could YOU prove to YOUR satisfaction that HE DID increase permanent generation of electricity; DID increase light in your globe?

STICK A METER IN THE LINE, KEEP IT THERE, MAKING CONSTANT READINGS. THAT will tell the tale.

If we were a Chiropractor and desired to practice methods other than Chiropractic, we would like TO KNOW what effect this or that method had on increasing or decreasing mental impulse nerve force flow between brain and body;

—whether such was permanent or temporary

—whether it was a big build-up for a great let-down, or not.

If we were a Chiropractor, desiring to practice methods other than Chiropractic, we would reason that **THERE IS ONE WAY TO KNOW**: — put a meter on the nerve line and measure what happens

—measure quantity flow before, during, and after other method was used

—measure quantity flow each week, for weeks thereafter.

That will **PROVE** what happens as a result of use of that method.

It will prove or disprove **MORE** than all printed literature, gifted words, varnished surfaces or any glib salesman can tell.

—If it **DOES** permanently **INCREASE** mental impulse nerve force flow, it is worth its weight in gold;

—if it permanently **REDUCES** flow, it is not worth your time, worry, or money — no matter how cheap.

There are ideas you already know. We are not telling you anything new.

The B. J. Palmer Chiropractic Clinic, in our labs, have put meters on nerve lines; **WE HAVE MEASURED CURRENT** before, during, and after. **WE KNOW** what happens!

We have made extensive tests, and measured quantity of electric potential of

—stimulative and inhibitive quantity flow values of various essenced and diluted so-called treatment diet foods

—various drug reactions, such as hypnotics, narcotics, stimulants and depressants; per mouth and hypodermics, etc.

—resultant conditions following common so-called every-day drugs such as those given for epilepsy, etc.

—various so-called non-medical treatment modalities, such as massage, colonic irrigations, electrotherapy, hydrotherapy, infra-red, ultra-violet, internal and external hydrotherapy treatments, etc.

Purpose of these extensive recordings of conditions was to find out what their action was to increase or decrease nerve force flow, mental impulse supply and resultant re-action upon them

by Innate Intelligence; how long each might produce change; whether temporary or permanent, etc.

Net result of this research, which was FIRST TIME such was ever conducted on living human beings, shows:

- all that *stimulates* does so for a short time immediately after being given or taken; then falls into inhibitive stage
- all which *inhibits* does so beginning at once, immediately after being given or taken and continuing as long as a condition exists which incited such action
- all stimulation stimulates at first and gradually fades into exhaustion and then BLOCKS flow
- ALL stimulation OR inhibition ALWAYS ENDS IN BLOCKING
- how blocking occurs on efferent or afferent sides of circuit
- how vertebral subluxation “blocks” quantity flow on efferent side of cycle and produces dis-ease
- how some drugs and treatments “block” quantity flow on afferent side of cycle and produce or reduce “pain” in mind in brain.

An aching tooth is a good example of what occurs.

Dentist gives an injection of novocaine at periphery of those efferent nerves, or at beginning of afferent nerves leading back to brain.

Pain subsides in a few moments.

What happened? All impressions are blocked off from traveling to brain, hence mind gets *no* impressions to interpret, hence *no feeling* of abnormal condition at periphery of those efferent nerves.

Patient feels relief from pain.

Pain, or other normal mental interpretation of abnormal physical condition at periphery of efferent nerves IS necessary for Innate to know what to do, how to do it, and how much energy to do it with.

Suppose food were put into stomach, and NO impressions traveled from stomach to brain — how would Innate know when

or how to send functional impulses to stomach muscles to begin churning it to begin digestion?

Suppose kidneys filled with urine and NO impressions traveled from kidneys to brain—how would Innate know when or how to send functional impulses to kidneys to cause them to dump their contents into bladder for urination?

Suppose lower bowel filled with fecal matter, and NO impressions traveled from lower bowel to brain—how would Innate know when or how to send functional impulses to bowel to cause defecation?

Innate MUST KNOW and ONLY way thon CAN KNOW is by impressions thon gets FROM area involved, via afferent nerves.

To BLOCK OFF afferent flow is to produce an ABNORMAL status on afferent side of functional cycle.

Chemicals and treatments have a direct effect of blocking *afferent* flow. Other chemicals and other treatments have a direct effect of blocking *efferent* flow.

Both sides of this circuit must be flowing normally to produce normal function.

BLOCKING FLOWS

Research work proves that a vertebral subluxation does two things:

1. Acting as a block, it DAMS BACK FORWARD FLOW into brain and produces brain congestion, refusing to let it get thru to flow forward into body thru its efferent nervous system.
2. Simultaneously, it STARVES BODY from getting its normal quantity flow of nerve force mental impulse supply, refusing to let it get thru to flow forward into body thru its efferent nervous system.

This "dis-ease" now means TWO things: CONGESTION in brain, STARVATION in body; too much energy IN brain, not enough IN body.

If an adjustment is correctly given upon correct vertebral subluxation, and pressure IS released, three things should be noted:

1. Release of full congested feeling in brain, giving a light, clear, released-pressure feeling;
2. surging of new life, heat, action in body; which produces
3. tired, exhausted, relaxed condition in body because of WORK now increased, released quantity of energy has produced;

—interference graph wave pattern, BEFORE adjustment

—interference graph wave pattern, AFTER adjustment.

Medicine is a perfect failure of science and art. Why?

—not because they haven't education and knowledge of normal and abnormal anatomy and physiology

—but because every method of treatment used — excluding surgery — consists in trying to CURE OR HEAL disease by BLOCKING nerve force flow.

They BLOCK the flow of healing and curing forces with stimulative or inhibitive processes applied from the external.

They are and have been learning that

—one CAN'T cure disease BY BLOCKING

—CURING AND HEALING are INTERNAL processes

—curing and healing can be brot about by INCREASING flow of nerve force

—ONLY way to bring this about is by RESTORATION

—process of RESTORATION is opposite to PRODUCTION OF BLOCKING.

The process of production of dope addicts is simple.

Morphine, heroin, opium, marijuana, etc., gradually increase daily use until they become A NECESSITY to keep function moving.

- 1st. A concussion of forces, vertebral subluxation, occlusion, pressure, interference, resistance, reduction in quantity flow, blocking — and this is THE BEGINNING or primary of functional or pathological dis-ease.

- 2nd. Treatment stimulation to overcome inhibition.
Dope to overcome incipient blocking.
Dope to overcome blocking created by previous dope.
Dope produces more blocking.
More blocking demands more dope.
More dope, more blocking; more blocking, more dope.
Eventually, permanent and chronic blocking.
Eventually, dope addicts.

The medical principle for curing disease blocks function efferently or sensibility afferently.

Medical research has PROVED to them that that was what they were doing.

Medical men now know that blocking nerve flow did not and could not cure disease.

Medical research has proved that only restoration of nerve force flow CAN cure disease.

THEY are repudiating blocking, affirming restoration; denying reduction and asserting increasing nerve force flow.

The Chiropractic principle for producing health is to restore function efferently and sensibility afferently.

Chiropractic research proved to us that that was all we could do when we gave an adjustment.

Some Chiropractors now think this wrong; that blocking nerve force flow cures disease.

Chiropractic research has proved that blocking produces more disease.

Some Chiropractors repudiate restoration, affirming blocking; denying increasing and asserting decreasing nerve force flow.

Why this conflict between what Chiropractic and medicine both prove; and what medical men and Chiropractors want to practice?

Why this conflict between what medicine seeks and Chiropractors deny; medical men denying what they have, wanting what they have not;

—Chiropractors denying what they have, wanting what they have not;

—medical men wanting what Chiropractors have;

—Chiropractors wanting what medical men have?

Medicine is rapidly disintegrating from the medicine of yesterday to a modern medicine of today.

Modern medicine of today is short on what it was long on yesterday;

—long on today, what it was short on yesterday.

This difference is getting away from its older theorizing and practices and accepting new principles and practices.

The NEW principles and practices, upon which they are building a NEW medicine of tomorrow, ARE CHIROPRACTIC — AND HAVE BEEN CHIROPRACTIC since 1895.

Chiropractic adjustment on vertebral subluxation RESTORES quantity flow on both efferent and afferent sides; restores health efferently, and normal sense feeling afferently.

FLOW — WORK — REST

Flow, work, rest period patterns must balance each other to have health.

Flow, work, rest period patterns, if unbalanced, produce disease.

Examples:

—short flow period, usual work and rest periods, produce little energy, little work because of little energy, and little rest; therefore little function because of little energy with which to restore it.

- normal flow period with short work and rest periods produces energy but little work and rest, therefore little function or restoration of health.
- normal flow period with normal work period with little rest period produces energy and work, but little recuperation period, therefore little recovery of health.

We check the week, five-channel, comparison records to note these changes from abnormal split periods between flow, work, and rest, to normal divisions where each equals the other.

INHALATION AND EXHALATION GRAPH

It is well known that inhalation and exhalation should balance on external and internal pressure, in frequency and in time elements

- flow, work, rest periods should balance; if they do, breathing is normal
- we have isolated normal inhalation and normal exhalation graph wave pattern
 - short inhalation and long exhalation
 - long inhalation and short exhalation.

THOT FLASHES

Mathematical measurement of education or insanity

- we think we think all the time
- we are a race of morons
- it is a thot-flash process
- thot-flash frequency
- thot-flash completion or incompleteness.

100 per cent efficiency thinker will think one normal thot-flash every second in frequency, and complete it and hold it one full second in duration.

IQ of 182 was able to do this.

University professors, 1 thot flash every 3 seconds in frequency
 —laboring man, 1 TF every 18 seconds

- dullard, 1 TF every 42 seconds
- epileptic, 1 TF every 1 minute 13 seconds
- violently insane, 1 TF between 5 and 6 minutes.

The gross record on a gross series of 500 cases (remembering they are all sub-normal with dis-ease) is:

- 1 TF per 72 seconds—1 minute 12 seconds
- 1 completed TF per 147 seconds—2 min. 27 seconds.
- 1 incomplete TF per 142 seconds—2 min. 22 seconds.
- giving an average of 1 minute and 12.3 seconds.

Examples: 1 TF per second, held a full second, completed in one second duration—100 per cent thinking valuation (arbitrary basis).

1 TF per ten seconds—10 per cent thinking valuation in frequency.

1 TF, half-completed every ten seconds, held one-half second in duration—2½ per cent thinking valuation in frequency, completion, and duration.

We have arbitrarily accepted the IQ of 182 as the most normal or highest standard we have ever measured. We say "most normal" because there was undoubtedly less interference to transmission between his Innate source of understanding of all things and his educated brain that desired to know, sought to know, and sought answers to questions which arose in his educated mind. Anything less than that "most normal standard" was "less than that" because of interference in flow of Innate knowledge between the two brains. According to degree of that interference, was the spread between 1 TF per second, held a full second, and completed in that second.

If he thot 1 TF every 2 seconds, held it a full second, completed it in that second, he would be only 1/6th as efficient as normal standard.

If he thot 1 TF every second, held it only ½ second, completed it, he still would be only 1/6th as efficient as the normal standard.

If he thot 1 TF every second, held it the second, and only ½ completed it, he still would be only 1/6th as efficient in thinking values as normal standard.

If he thot 1 TF every two seconds, held it only $\frac{1}{2}$ second, completed it in that second, he would be $\frac{2}{3}$ ds less efficient than normal standard.

If he thot 1 TF every 2 seconds, held it full second, and only $\frac{1}{2}$ completed it, he would be still $\frac{2}{3}$ ds less efficient than normal standard.

And so we could continue to build up spread between frequency, duration of holding, and completion of one thot flash, until we could establish a percentage basis for every person according to spread between normal standard and that which he was incapable of reaching.

Average human being is well down the scale below these figures.

No wonder educators think of the human family as morons.

In none except IQ of 182 (which is now our standard of efficiency test) were any able to complete more than HALF their thought.

Children complete far more than adults — no inhibitions.

By measuring FREQUENCY, COMPLETION, AND DURATION, over gross footage per person, we establish a mathematical quantity per cent of education or insanity present in that individual.

The closeness, or spread, is what measures insanity or education — not colleges, degrees, semesters, books, etc.

Closeness of frequency, duration, and completion of TF's is what establishes quantity of TF's which establishes quality thereof, which establishes intellectual values. We do not consider education as a *thinking* standard because too frequently "education", per se, is a blank repetition without understanding.

Spread between frequency, duration and completion of TF's is what establishes blank periods between TF's which establishes lack of quantity, therefore quality of coherence, of intellectual values.

SEX INSANITY GRAPHS

We have been able to connect reduced quantity flow of mental impulse supply to sex organs by measuring reduced quantity flow to sex organs, in cases of petit and grand mal, as a simultaneous factor, which directly reduced thinking value of frequency of thot-flashes, proving that sex organs feed brains food substances; and when food substance is absent in brain because of sex disorders, thot flashes reduce in frequency, duration, and completion.

Research proves that Innate brain is above possible vertebral-subluxation pressure-interference, hence quantity generation and external flow efferently and internal flow afferently should be normal at all times under all conditions. But research further proves that either Innate or Educated brain can be congested by a damming backward of external or outward flow, thus producing graph wave patterns of excessive quantity. Further research proves that educated brain can suffer a reduced quantity generation if and when sex-food is denied it, if and when quantity of mental impulse nerve force flow to sex organs is reduced because of vertebral subluxation.

We now (May, 1946) have over forty-eight miles of records available, broken down into analyses of various kinds.

Practical application, on each case, each two weeks

- checking and cross-checking, which by inclusion and exclusion establish
- whether there does or does not exist a free and uninterrupted flow above and/or below
- known locations of vertebral fractures as proved by X-ray
- suspected “brain tumors”
- suspected “spinal cord tumors”
- cases diagnosed “sclerosis of spinal cord”
- suspected “clot of blood on the brain”
- paralysis “caused by a tumor in brain”
- case has “fracture of spinal column producing pressure on spinal cord.”

Several fracture cases and how we disproved them:

- designated meric system of specific vertebral subluxation interference level
- we measure sick quantity energy flow when they come in
- we measure returning health quantity energy flow, each week.

Today we have a means at our command of proving each or any right or wrong.

ARE YOU "DEAD" WHEN YOU "DIE"?

Authenticated cases are known where a person has been pronounced "dead", laid out in coffin (not embalmed, of course); where mirror was placed on mouth of the "dead", to be certain. Upon removing mirror, perspiration was found on same. Occasionally, such have been known to return to living. Various conjectures, in refutation, have been given. Even tho actually dead, body gives off insensible perspiration which would not prove person was alive.

Authenticated cases are known where, upon exhumation, bodies have been found turned on sides or upon faces, skin was torn as tho scratched, having every appearance of returning to life and struggling in vain to get out of coffins. Various conjectures, in refutation of turning to life, have been given. Rigor mortis may have set in, muscles could contract and distort position of body.

Authenticated cases are known where, upon exhumation, hair, finger nails, and toe nails have grown, showing that body continued to feed its length, presenting appearance of continued life in body. Various conjectures, in refutation of continued life, have been offered. Even tho actually dead, body feeds its tissues as long as there is food values in tissue structures, much as a person who fasts feeds upon his own body fats as long as such exist.

In substantiation of these apparent manifestations of continued life, coma could take place and have every appearance of "death"; so much so that it could fool any doctor, who would pronounce case "dead." Cases who were pronounced "dead" and returned to life again have told about hearing conversations

about their death, yet were hopelessly and helplessly unable to indicate they were alive; heard and knew everything being said.

This raises the inevitable question: What IS "coma"? It is a state of inanimate life, where Innate IS present in an inactive state; present in abstract, not acting in or thru matter; a seeming state of mental existence but completely passive so far as expressing action in matter.

Who pronounces a person "dead"? An M.D., any doctor, or any individual. How is one to know? What are usual tests? To an average individual, when person ceases to be conscious, ceases breathing, or shows no further signs of action, he is "dead." To M.D., when he ceases to sense breathing with stethoscope, or fails to feel a perceptible pulse beat, patient is "dead."

After all such tests are given, case is pronounced "dead", undertaker is called, and, within a matter of a few hours, embalms body. Once blood fluids are drained and formaldehyde is injected into system, there can be no doubt that individual IS dead.

Suppose, however, these tests should fail to detect a very much alive Innate present in that body, but in a very deep subtle coma that is beyond detection? Question arises: IS that "dead" person dead? If well known authenticated cases of returning life are true, then life-in-a-comatose-state can be beyond detection. How often does such occur? Who knows? Embalming is usually done so quickly there is no way of checking. Suppose ALL bodies were kept, either home or in funeral parlors, not in icebox but in a comparatively warm room — who is to say how many might return to life?

"Death" is a comparative term of inactivity. There is no "death" in sense that matter becomes absolute in inertia. Matter is always in motion in high or low degree at a commensurate rate of speed per unit of time. When we are satisfied person IS "dead" matter is in a process of degree of motion of disintegration. People may be running, standing still, sitting, lying down; heart may be beating fast, slowly, or be imperceptible — but still in motion. Breathing is the same.

Science is now breaking down energy values to atomic action, splitting that. One looks at a drop of water and sees no energy

value, yet it has been said that, if split fine enough, there is enough energy in it to drive the Queen Mary ship from United States to England and back.

Today, the electroencephaloneuromentimpograph measures down to five-millionths of one volt or less. We have made extensive tests, and measured quantity of electric potential of growing plants — such as geranium — between root and leaf-tip, picking up afferent and efferent of each circuit. We have calibrated the living, sick, and dying rat, until it faded out to zero and stopped and was pronounced dead; yet we have gone beyond that and measured electric potential in a leaf severed from its mother plant; evaluated electric potential still in action in body of rat to all appearances dead.

Our suggestion is that when any person IS pronounced "dead", body should not be embalmed for at least twenty-four hours. Means and methods used by doctors ARE TOO GROSS to be certain. More sensitive methods should be resorted to, to be certain. If possible, a 'timpograph test should be made before embalming. Who knows how often a resurrection or restoration could be proven possible, and another human life saved from being buried alive?

WHICH WAY TO SLEEP — NORTH AND SOUTH, OR EAST AND WEST?

In another part of this B. J. Palmer Chiropractic Clinic research subject, we mentioned experienced steel men stack steel north and south. Matter is not inert, even tho it be steel; it is still in motion as energy passing thru moves it. Energy which flows thru steel is magnetic current from South, or positive, Pole to North, or negative, Pole. Energetic flow induces action of molecules of substance of steel. If it flows parallel, it throws off less particles than if it flowed crosswise. To flow lengthwise, is to preserve continuity of its substance. To flow crosswise, is to disintegrate substance and cause it to rust faster. That is what rust is — a disintegration of molecules flying off surface.

Is it better for humans to sleep with head or feet north and south, or with head or feet east and west? We made extensive tests inside and outside of 'timpograph labs, with people sleep-

ing outside and others sleeping inside. We tested them sleeping north and south, and east and west; inside with shielded tests; outside without. We found it takes nineteen times MORE energy to sleep east and west than north and south. Why?

Here is a simple explanation: Imagine two streams of water, one flowing north and south, other east and west. At one point there is a joint meeting place of two streams, where each is trying to pass thru other. Suppose one was colored red, other green. What happens on other side of juncture? Each has to fight to get thru other. Flow from north meets and opposes flow from east. At that point, energy is expended in opposition to other flow. Some north flow gets thru to west; other east flow gets thru to south. They are no longer red or green, but a dilution of each. Energy is wasted and lost in opposition to opposite flow.

Sleeping man is in like condition. His bodily nerve force currents flow from head (north) to feet (south); from feet (south) to head (north). So long as there is no opposition, there is no wasted energy spent in that flow. If he sleeps prone with head east and feet west, his body energy flow is in constant opposition to magnetic North and South Pole current flows. One current battles other all night. When currents oppose each other, energy is wasted and body loses reconstructive value of rebuilding body tissues.

Our 'timpograph measurements evaluated loss at nineteen times more energy wasted by two opposing currents battling each other. If head or feet are pointing north and south, knowing magnetic currents flow north and south, there is NO opposition and it takes nineteen times LESS energy to sleep in that direction.

Some people wake up tired, sleepy, groggy, not rested. They wonder why. Others wake up refreshed, wide awake, head clear, and rested. They take for granted it is as it should be.

We suggest, no matter how bedroom is arranged, you turn all beds so they run parallel north and south. Try sleeping in that direction for a few weeks or months. Check carefully and margin of difference will become noticeable, other things being equal. By this we mean that a sick person, or one with a pathology, might still be tired and groggy, but it should be less noticeable north and south. Every bed in our home is north

and south. In any event, it does no harm to try this plan, and it can do good. This THEORY is not new. Grandmothers have told about it and done it for years. But, to best of our knowledge, this is first time it has been proven to be a scientific fact, measurable in differences between relative values of both directions.

HOW WE KNOW THE PLACE, THE TIME, AND WHY — TO ADJUST

Spinographs give information as to abnormal position, by revealing inside information of vertebral misalignments in subluxated positions.

NCM-NCGH-NTP records, under shielded and grounded booth constants, eliminate possible gross errors in human observations as to *when* to adjust because of existing interferences to nerve current flow, and *when not* to adjust because of restored nerve current flow following adjustment.

Electroencephaloneuromentimpograph graph wave patterns exhibit minute degrees of current flow even when NCM records would call them free of disturbance.

NCM reads resistance heat. 'Timpograph reads quantity flow itself, whether under resistance or after being restored.

EFFERENT AND AFFERENT GRAPH WAVE PATTERNS BETWEEN BRAIN AND BODY, AND BODY AND BRAIN

Our electrode pick-up consists of two halves — efferent and afferent. Pick-up wire is one five-thousandth of an inch in diameter, which makes it possible for minute areas of application over a nerve fiber.

In all 'timpograph wave patterns there is a carrier wave, previously mentioned. Into, over or thru this carrier wave are various superimposition patterns which can be distinctly recognized because of their distinctive character.

If we are over a nerve conveying EFFERENT impulses from brain to body, the character of isolated pattern will be BELOW

median center of carrier wave. If we are over nerve conveying AFFERENT impressions from body to brain, character of isolated pattern will be ABOVE median center of carrier wave.

If character of INFERIOR superimposition IS ALIKE in frequency, duration, and character of that isolated graph wave pattern to one appearing on our opposing electrode pick-up, then we are on the EFFERENT fiber of a circuit. If character of SUPERIOR superimposition IS ALIKE in frequency, duration, and character of that isolated graph wave pattern to one appearing on our opposing electrode pick-up, then we are an AFFERENT fiber of a circuit. If character of one to other is dissimilar, then opposite is true.

By comparing the two, superior and inferior, to second-time factor, we can determine speed of travel from brain to body, body to brain, and/or the completion of a complete continuity of matter with continuity of nerve force flow.

IMPORTANT DAILY CASE REPORT

Each day, after being checked, patient is handed a printed DAILY CASE REPORT sheet on which he is to report how he feels, changes which take place between day of check and following day, and questions which may come to his mind. With these written reports, we have a consistent record. By reading his questions, we have an opportunity to dispel wrong impressions patient may think or pick up in talking to other cases.

Example: Case with "constipation." In short time "diarrhoea" begins. Case thinks he's getting worse. Briefly, at time of check, we dispel this erroneous idea. It re-establishes confidence, makes patient know he is going thru a process of eliminating gathered waste matter. Instead of becoming discouraged and wanting to go home, patient is satisfied all is well, and stays until normal evacuations occur. Asking questions and answering them then and there, quickly plants correct thinking and saves waiting several days until patient gets an appointment, at which time he may forget questions, wishing later he had thot of them. This also cuts down time consumed in appointments.

REST ROOM CONSTANT

Chiropractors spend years in preparation, developing thinking and understanding values of Chiropractic principle and practice; invest thousands of dollars in board, room, books, etc. — all leading to one simple, where, how, when, and why to give a vertebral adjustment to get sick people well. All this IS important — but they rarely give one thot, one hour, or one dollar TO KEEP IN PLACE A SUBLUXATED VERTEBRA THAT HAS BEEN ADJUSTED.

Father McGrath called an adjustment a "setment." Once vertebra has been "set" it must then "seat" itself. Innate HELPS in "setment" but Innate ENTIRELY seats it.

To this end, The B. J. Palmer Chiropractic Clinic has thirty-eight insulated, isolated, quiet rest rooms. After each "setment" in adjusting room, patient is placed on ambulatory couch, carefully wheeled to rest room, transferred from couch to bed where he is to rest for NOT LESS THAN THREE HOURS. In quiet rest room, relaxed, vertebra SEATS itself, stays put longer. This a part of "that staying put" idea.

In majority of offices, patient rushes in, gets an "adjustment", rushes out to catch street car, rushes home, with frequent possibility it DOES NOT STAY PUT. This increases frequency of adjustment. This is an important part of program of getting sick people well.

Alibi frequently offered why Chiropractors do not have rest rooms is: "We rent our offices by cubic feet at high rentals. To add additional rest rooms is to increase rents." This is true, BUT if renting additional room helps to keep vertebra in alignment and hastens recovery, and quickens return of health, it is money well spent.

Money spent KEEPING A VERTEBRA IN ALIGNMENT is as valuable as money spent in learning how to adjust it.

NECK CONSCIOUSNESS

We recall vividly a case who WALKED into our office with what he called a dislocation of sixth cervical. We told him he had no such, because if he had he could not WALK into our

office—he would be carried in on a stretcher. He produced spinographs which clearly depicted A DISLOCATION. We denied these pictures were of him. To prove to both, we took spinographs. Sure enough, it WAS his neck.

We adjusted dislocation. Immediately, he gave a few violent jerks, turned blue, twisted off table, and fell to floor. We figured that was the end.

Dr. A. B. Hender and we held a postmortem on what we did we should not have done, or what we did not do we should have done. In few minutes, case walked in, twisting head right to left, forward and backward, to prove he was now all right. We told him, quickly and emphatically, to quit twisting. We were “neck conscious” whether he was or not.

By “neck conscious” we mean: we have just “set” a subluxation. Case should be careful to not JERK or TWIST neck until it is completely “seated.” When a dislocated joint has been “set” by surgeon, he splints it so patient cannot jerk or twist it out again. This we cannot do with a neck. It is something patient must do. By being “neck conscious”, we do not mean to go around with a rigid, stiff neck, fearful of turning it one way or another. Keep neck relaxed, but no SUDDEN jerks or twists.

By “neck conscious” we also mean knowing HOW TO SLEEP to protect adjustment, once given. Person should sleep in exactly same position he would hold neck in sitting. Face could be upright and front, neither shoved forward on chest nor strained backward between shoulders. He should not sleep with head twisted on right or left shoulder. By all means, he must not sleep on stomach. To do so forces him to twist head sideways, to breathe. This contracts muscles of one side of neck, and relaxes other side, and tends to throw out adjustment. Pillows should be placed under shoulder if one sleeps on side, to absorb difference in space between shoulder and head. If case sleeps on back, a pillow should be placed to absorb difference between back of head and shoulders. In either position, it places neck in same relation in sleeping in which it is held when sitting upright. By following this simple rule, patient can materially help Chiropractor keep vertebra “seated” where it belongs, and hasten recovery.

FREQUENCY OF ADJUSTING

"Frequency", like "acute" and "chronic", has a double meaning.

Frequency as to NUMBER of places; also as to REPETITION of one place.

The Chiropractic principle and practice premises on the hypothesis that:

—a concussion of forces ACCIDENTALLY applied PROduces vertebral subluxation.

—a concussion of forces INTENTIONALLY applied, REduces verterbral subluxation.

A "concussion of forces" is an external force trying to enter to destroy; where an internal force resists its invasion to preserve.

D. D. Palmer's Chiropractic was based on the singular of "A" vertebral subluxation causes dis-ease.

Our practice, however, has run the gauntlet — anywhere from 24 movable vertebrae daily, skull sutures, muscles, sacrum, to one or more vertebrae every ten or fifteen minutes.

IF the PRINCIPLE be right, somewhere lies THE RIGHT practice.

Is it skull sutures?

Is it 24 vertebrae?

Is it sacrum?

Is it muscles?

Is it one vertebra many times?

Is it majors and minors?

Is it meric system?

Is it one specific?

A vertebral subluxation has FOUR elements:

- (a) a vertebral misalignment between its co-respondents above and below
- (b) a vertebral occlusion between its co-respondents above and below

- (c) a vertebral pressure upon spinal cord or nerves between its co-respondents above and below
- (d) and an interference with reduction of normal quantity flow of transmission of mental impulse supply from brain above to body below.

FOUR elements MUST be present to be a vertebral subluxation.

FOUR elements MUST be corrected to be a vertebral adjustment.

ADJUSTMENT can be given ONLY where four elements are present.

ADJUSTMENT can be given ONLY at a place and to those conditions which act as THE CAUSE of dis-ease.

ONLY place WHERE ALL FOUR ELEMENTS can be simultaneously existent, is in the occipito-atlantal-axial region.

At any and all other places, from skull to sacrum, ONE element exists, viz., misalignment between vertebrae.

If there can be AN ADJUSTMENT at ONLY ONE area, what is done to other vertebrae?

Research answers those questions and proves its case:

You "crack" and "pop" bones, move misalignments which CAUSE NO DIS-EASE; neither do you correct any when you move them.

Thru years, all of us have BELIEVED them subluxations.

Research proves they were NOT such.

Every day, when we cracked many and heard them pop, we occasionally and accidentally adjusted the right one, at the right place, in the right way, at the right time, and got a sufficient percentage of sick people well to keep the principle alive and the practice proving itself.

Many a sick person has come in once, thought we were too rough, decided there was nothing in Chiropractic; went home, never returned, and got well. Without KNOWING when to stop,

he DID stop at RIGHT time. Without KNOWING, we did the right thing at the right place, in the right way, and patient got well.

Had he returned day after day, WE would have punched it IN one day, OUT the next, and kept on making him better, then worse, occasionally and accidentally getting a small percentage well, in spite of us; but generally failing on larger percentage, because of us.

If he returned day after day, we would have punched, and did, many from one side one day, other side next day; increasing and decreasing pressures at places where subluxations existed; doing no good on rest, where such did exist.

The Chiropractic principle being sound — to continue practicing it — then a concussion of forces PROduces a vertebral subluxation.

HOW and where does a concussion of forces enter? What is the nature and location of its means that create a vertebral subluxation?

Must it always come as a violent shock, a violent fall, a violent accident, a violent injury? Or, can it come in milder form?

A person might fall ON HIS FEET, transmit concussion of forces FROM feet TO where a vertebral subluxation was possible, viz., occipito-atlantal-axial area. Between feet AND head, that concussion of forces MIGHT produce various vertebral misalignments, none possessing four elements necessary to make it a vertebral subluxation CAUSING dis-ease.

A person might get a blow in lumbar region, transmit concussion of forces from where it entered TO where a vertebral subluxation could be REDuced, viz., the occipito-atlantal-axial area.

IF atlas or axis are ONLY vertebrae that CAN BE subluxated, causing dis-ease, who is to say that some of these concussions of forces, delivered by Chiropractor with corrective intent, do not actually PROduce what he used with intent to REDuce?

IF atlas or axis be adjusted first, and he goes down the back punching other places, with concussions of forces, who is to say

that some of these concussions of forces, delivered below, would not produce an atlas he has just REduced? Who is to say, having ignored atlas or axis, that some concussions of forces delivered below, would not REduce it above, assuming he didn't do so direct before? This would place credit where it didn't belong.

With 6, 9, or 24 concussions delivered, almost simultaneously, up and down spine, via meric system, majors or minors, or what method have you, who is TO KNOW what does what, where does what, or how does what where?

How did WE KNOW we didn't jar one *in* at one place, and jar another *out* at the next place?

Each intent to be an adjustment HAD TO BE a concussion of forces to JAR ONE IN; why couldn't it be a concussion AND JAR IT OUT?

Concussion of forces CAN ENTER to PRO-duce at any or many places; therefore they can ENTER to REduce at any or many places.

There should be SOME WAY OF KNOWING what we are doing; where we do it; when we do it.

KNOWING, we can concentrate our attack on places needing, and defend against attack at places not needing.

TODAY we have ways OF KNOWING which IS THE one

—OF KNOWING which direction IT IS OUT

—OF KNOWING which direction to adjust it

—OF KNOWING when to stop, and leave it alone

—OF KNOWING when to do nothing, letting him get well.

It is a radical departure based on difference BETWEEN GUESSING at many places with a right principle, AND KNOWING WHERE to adjust with a right practice.

It took no little courage for us to repudiate 40 years of work.

It will take no little courage for you to admit a better way.

Suppose we asked what you THOUGHT the temperature in this room was?

Each WOULD GUESS somewhere approximately around near what it possibly is.

Suppose we looked at a thermometer; SAW. We would KNOW.

It wouldn't take courage TO BE EMPHATIC, because thermometer gives CORRECT answer.

Suppose we asked each where YOU THOUGHT the vertebral subluxation WAS, causing dis-ease?

Each WOULD GUESS somewhere in spinal column, approximately between above the head and below the sacrum.

Suppose you looked at your meters; SAW. YOU WOULD KNOW.

It wouldn't take courage for you TO BE EMPHATIC because meters give CORRECT answers.

How often must a dislocation be set, to set it? Is once enough? If so, why more than once?

Would you work a knee joint, to set an elbow joint, merely because it cracked and popped?

Would you work on toe joints, to set an elbow joint, because they cracked and popped?

If a vertebral subluxation is set, must it be continuously set day after day?

If ONE vertebral subluxation needs adjusting, must we crack other vertebral joints because they crack and pop?

Gross records since 1935 in The B. J. Palmer Chiropractic Clinic prove we adjust one vertebral subluxation, once, every 23.9 days.

It is unavoidable that human beings do things which occasionally and accidentally throw them out again.

But they don't keep throwing 24 of them out every day.

It is a far cry between a 16 year gross average of once every 28.9 days, to 24 every day; at one confined and defined area, to above head to below sacrum.

The entire issue resolves itself into difference between guessing and knowing.

Some people would rather guess than know. It is the easier way.

Other people would rather know than guess. This is the harder road to travel.

WE KNOW; WE DON'T GUESS whether what we do, where we do it, as we do it, is right or wrong.

—we evaluate, calibrate quantity flow between brain and body; — between body and brain

—through vertebral subluxation before and after adjustment

—above and below vertebral subluxation, establishing exact location

—thus KNOW what is occurring as a result of what we do, where we do it, and how.

No one disputes correctness of the Chiropractic PRINCIPLE.

No one disputes correctness of the Chiropractic PRACTICE.

But midway between a correct principle and a correct practice IS A CORRECT APPLICATION, which can be right or wrong — right if it succeeds; wrong if it fails.

The problem HAS ALWAYS been one of law of percentage.

That we have ALWAYS gotten SOME cases well, is obvious.

That we have ALWAYS failed to get SOME cases well, is further obvious.

That percentage OF FAILURE is greater than percentage of SUCCESS, is still further obvious.

Harvey Lillard was FIRST patient.

He got well.

We have been getting cases well ever since.

We have also been failing on cases ever since.

Many are content to rest on the successes of their successes.

No problem is solved when we are satisfied with a low per cent of successes.

No problem is solved until we solve our high per cent of failures.

The Chiropractic principle AND practice is SO great that any person who confines his work to the back-bone — no matter WHAT he does or HOW he does it — is going to get a per cent well.

Failures ARE MORE IMPORTANT than successes. IF we use them TO KNOW WHY we failed.

To get A LOW per cent well — and remain ignorant OF HOW OR WHY — does not settle THE problem.

To fail to get A HIGH per cent well — and remain ignorant OF HOW OR WHY — does not settle the problem.

We need KNOW WHY we succeed if, as, and when we do.

We need TO KNOW WHY we fail, if, as, and when we do.

THAT is the purpose of research — to solve the problem OF THE UNSOLVED.

Chiropractic started, in earlier years, to be a principle and practice of adjusting vertebral subluxations to get sick people well.

Since 1935, Chiropractic has been and is going thru a scientific development, proving or disproving theories, hypotheses of its principle and practices under which it has been working up to this period. Desiring to prove Chiropractic other than a delusion, theory, or method to make a living with; to prove Chiropractic a science, taking its place amongst and in the field of sciences, it is a question whether Chiropractic has not outgrown itself as

generally understood and known; has established a NEW understanding of man, greater than Chiropractic itself, per se. If that be true, older horizons we once held on what "chiropractic" was, must give way to new views in our knowledge of man, and must accept in working with man for man.

We have proved the fundamental principle sound. We have also proved the fundamental practice sound. We have invented a new fundamental basis for raising the quantity and quality of man. MAN has conceived, invented, and patented many ideas and things which have materially improved the external welfare and his labors as they apply to conditions and things EXTERNAL to man. As MAN was capable, the capability of things MAN MADE was capable.

A sick man is less capable and less able to do things than a healthy man. An insane man is less capable and less able to do sane things than a sane man. With man working materially below normal par level, his product would be materially decreased in quantity and quality. In getting a sick man well, or an insane man sane, as a producer, we have stepped up his product that only a healthy or sane man could or would produce. Multiplying the step-up of health and sanity in ONE man, by MANY men, we have increased the value of the human race TO the human race in his products; therefore Chiropractic steps out beyond its starting point of desiring to get a sick man well, of increasing the value of the producer. We have stepped up "Chiropractic" to where it steps into increasing quantity and quality of everything man produces; skipping from Chiropractic TO product.

POLYGRAPH

A part of our research into the quantity of mental impulse nerve force flow includes a Keeler Polygraph "lie" or "truth" detector.

It takes us out of the quantity and puts us into the field of proving or disproving superimposition of thot values into the carrier wave which proves MENTAL QUALITY of the "lie" or "truth" which, after all, proves or disproves THOUGHTS ARE RIGHT OR WRONG.

Polygraph proves duality of energy flows; educated and Innate; both with something superimposed on each carrier wave, we call education, intelligence, understanding, that discriminates between what is a fact and fiction, true or untrue, truth or lie, which medical men have called "the message".

One of these energy flows CAN lie; other CANNOT.

The question: "Did you steal the \$86.42 out of the purse?"

- dual impressions travel afferently, one to educated mind in educated brain
 - other to Innate mind in Innate brain
- dual interpretations, one of "lie" in educated mind
 - one of "truth" in Innate mind
- dual afferent carrier waves, one superimposed with "lie" "message"
 - other superimposed with "truth" "message"
- polygraph picks up both efferent carrier waves, superimposed with both messages, simultaneously, on two different graphs and deciphers the difference; discriminates "lie" from "truth" superimposition
- criminal traps himself.

Our research has proved that

- man hears dually
- thinks dually
- functions dually
- lives dually
- has a distinct dual personality
- has two carrier waves
- has two characteristic, differing, efferent and afferent carrier graph wave pattern cycles.

Records prove that a living human body has TWO separate intellectual flows of energy

- each is efferent and afferent
- each has a degree of intelligence expressed
- our polygraph work simultaneously records both.

MEDICAL HOCUS-POCUS

There is no "business" so fraught with guess-work, errors, and innocent deceptions as that of treating sick, with its rash promises of implied hopes of treating effects, cutting out pathologies, thinking such might get them well. The dangers are not those of malicious men, but those of misdirected systems they blindly create and stumblingly follow. Medicine is what it is, not because their motives are questionable, but because of the myths, mysteries, and moth-eaten methods centuries inbreeding which so fasten themselves into routine, that none dare deviate.

Beginning with asking patients for symptoms which patient alone feels, which patient tells doctor, who repeats back to patient what patient told doctor, charging the case a fee for exchanging layman expressions of feeling into a jargon of Latin never-understood terms; with tapping and listening means and methods of observation of pathologies, hoping to be able on outside of patient's body to know what is inside, doctor then separates and sorts, correlates and divides, multiplies and mixes his hopes and beliefs, and out of the jack-in-the-box education comes a compiled name called a diagnosis.

After diagnosis comes U.S. pharmacopae with its thousands of endorsed proper and ethical drug treatments, one or more of which will be sorted out from many; the deluge of drugs prescribed, any of which is an unknown quantity in any one person's body. Doctor follows name to book, book tells what he should prescribe. No symptoms or pathology, no name; no name, no book; no book, no treatment—diagnosis IS important to a medical man. Without it, nothing can follow, for there is its beginning.

Medicine is empirical, dogmatic, guess-work, a cut-and-try, by-guess-and-by-God prayer to the god Jupiter that something works in devious and peculiar ways. If patient dies, it was the "will of God"; if he gets well, doctor takes credit.

The battle of searching for "cause of disease" has gone on for centuries and still goes relentlessly on. Effects alone are observed. One effect becomes "cause" of other effects. Effects trail effects; no primary cause ever being found.

Microscope is developed. It finds microscopic life. All else previously failing, this opens new studies. "Germs cause disease"

is a new battle cry. They seek the enemy in his tissue lairs. They find one, they tag him, they announce his arrival. They build a chemical gun to kill him. Killing the germ, the patient dies cured. They make another old repudiation and another new announcement; this in time and place is denied. And so the scale runs up and down, year after year, century after century. Chemistry opens new fields. It finds new secretions, locates its organ. Out comes diet with vitamins, hormones, calories, etc. Then come dotes, antidotes; vaccines and anti-vaccines. Disease becomes animal, vegetable, and/or chemical, everlastingly seeking, trailing, finding, and denying. All because something outside is said to agree or disagree with something inside. Many causes, many diseases; many studies, many treatments — complexities pile up on itself until it is centuries topheavy; overburdening schools, professors, libraries, practitioners; bewildered, amazed, and living in a maze, none know where to turn, which way to go to win the struggle for healthful existence.

In a large sense, all professions have steadfastly persisted in following same guides. They make same approach, pursue same paths, mix same names, apply same stimulative or inhibitive treatment methods, with modifications as to neck-tie, parting hair, color of shoes, all of which brings sick man out of the same small end of human life funnel — cases die; and when physicians are ready to shuffle off, all wonder what the struggle was all about.

Chiropractic has been searching to get sickness out of mystery, to make health a simple study, to build all avenues of approach practical; eliminate guess-work and secure positive knowledge.

The BJP CC does NOT diagnose any case. We ascribe no name to complexed group of symptoms; neither do we go on "a fishing expedition" on outside, to direct us to think about what we hope is inside, that we might correlate or separate them into accepted names to go to a book, to apply treatments of effects that follow that name.

With *cause inside, cure inside*; with cause practical and cure equally so; with *a known specific cause* for all dis-ease and *a like specific* for adjustment; where the subluxation was, how, when; how, why, and where to adjust *are all within reach* of

every man if willing to think, study, apply mental faculties in solving age-old riddles of human beings.

It required as a foundation *elimination of all variables and establishment of constants*. As these have been done, man is an open book in sickness and health, life and death.

THE FOCALIZED OBJECTIVE

1895 to 1951 — 56 years

Many ups and downs

—from atlas to coccyx

—from one to 24 vertebrae adjusted daily

—from one method to another, 234 various adjustments

56 years later, we adjust ONE place on a gross average of

—one every 28.9 days

—difference between 24 vertebrae every day to

—one every 28.9 days

—difference is KNOWLEDGE of

—where

—when

—how

—and why; and

—where not

—when not

—how not

—why not; brought about by eliminating theoretical variables and establishing scientific constants.

Our work has now reached that scientific accuracy where

—if a patient entered

—said nothing

—revealed nothing

—he could come in sick

—he could go out well.

—we could scientifically record facts of case both ways

—knowing quantity and location

- without knowing diagnosis or quality
 - what his disease was
 - although we would know where it was
 - what quantity it was, before and after
 - when it was and when it is not now.
-

The B. J. Palmer Chiropractic Clinic solves problems of sick people referred us by Chiropractors. Our Clinic has problems it cannot solve.

1st. A practicing Chiropractor in another city or town has a prominent patient—banker, mayor, social leader, politician, store owner, whom he is desirous of getting *well*. Influence of this person is such he can refer many cases to Chiropractor. Everything done by Chiropractor has failed. HE wants case to get well. CASE wants to get well. To that end, Chiropractor refers case to The B. J. Palmer Chiropractic Clinic.

We research case, find THE vertebral subluxation, adjust the specific, and in a few weeks case has made a decided gain of returning health.

Something succeeded which The BJP CC did that was right, and did not do that should not have been done. Perhaps Chiropractor over-adjusted, "adjusted" too many places, adjusted wrong direction, or gave case various treatments.

Here enters OUR "problem". In dismissing case, we send records of what our Clinic did that secured results, with instructions to follow. For reasons of his own, Chiropractor refuses or fails to follow instructions which secured results, and falls back on his former methods which failed.

Patient, being observant, soon notices he is not continuing to get well; local Chiropractor does not use that which we did which secured results. In a few weeks, case returns to The BJP CC so he can continue to get well. This usually peeves local Chiropractor. HOW can The BJP CC solve THIS "problem"?

2nd. Under slightly different circumstances, another case comes to our Clinic from another Chiropractor. We use spino-

graph, neurocalometer, and other Chiropractic researching methods to prove analysis correct. Case is on road to recovery. We refer this case, with instructions, back to Chiropractor who referred him to us.

Case says to us: "What good will it do? He does not use or believe in X-rays. He does not have or use a neurocalometer. How can he check me and know whether or not I need another adjustment, whether I am getting better or worse? He failed to do me any good before without these things; that's why he sent me here. How much better off will I be when I go back to same thing? Why should I return to him? Isn't there some other Chiropractor in that town, or close by, who has these things, to whom I can go?"

The BJP CC always refers case back to Chiropractor who referred case to us. We have no alternative in ethics or in keeping good faith. We cannot keep this case from going to some other Chiropractor whom HE knows has proper and qualified equipment. Case knows he was getting well WITH qualifications WE used. He also knows his home Chiropractor does not have these qualifications. How can we change this conviction in patient's mind? To do so is to deny our procedures. To not do so is to affirm local Chiropractor's competency which, by comparison tests, has proven a failure. Three people are involved: local Chiropractor, patient who came to get well, and The BJP CC. Patient's getting well should be paramount. HOW can The BJP CC solve THIS "problem"?

3rd. Altho conditions change, another case comes to our Clinic to get well. Researching proves ONE specific subluxation to be adjusted. It IS adjusted — possibly once during the entire stay of case, even tho we keep checking daily to be certain. Decided results are developing. That which case came for — to get well — is becoming a reality. Case returns home.

Local Chiropractor believes in meric work and totally disregards our records of proof of recovery; and proceeds to "adjust" various and many places, various and many ways, every day — including vertebra we advised, but "adjusting" it every day.

In a few weeks, case returns to The BJP CC without advising local Chiropractor. We pick up where we left off, correct evils done at home. Chiropractor learns about case returning to us. He accuses us of soliciting return of case, which we never have done.

He referred case to The BJP CC because he EXPECTED us to solve his failure problem. This we did to satisfaction of ourselves and patient. Then he ignores our instructions when case is referred back to him.

Case knows we adjusted one place; local Chiropractor several. We adjusted only once; local Chiropractor, every day. Case got better with us; gets worse at home. HOW can The BJP CC solve THIS "problem"?

4th. We insist that "problem" case referred to us remain AT LEAST two weeks. In many cases, we are not able to solve its problem in that time. We insist case stay longer — sometimes several months. Case rarely challenges our motives. Local Chiropractor occasionally does. We have our scientific methods of checking and re-checking conditions of each case. Sometimes it takes weeks to deduce our analysis to proof, to be certain what we have done, and what should be done, is accurate and correct and should be followed to get that case well. HOW can The BJP CC solve THIS "problem" of having our scientific interest challenged into a commercial-financial motive?

5th. Referred cases come from Chiropractors who want patients to get well, especially when they are Chiropractors or members of immediate families, or prominent people in whom they are directly interested. Many Chiropractors use modalities, adjuncts, physio-therapy, or naturopathic methods on other patients, but send their families to The BJP CC, knowing we use ONLY Chiropractic. This, in itself, indicates they know what gets results.

Referred cases coming from such Chiropractors ask us direct questions. "Do any of these things help to get sick people well? Are all these things necessary? If they are, why don't you use

them here? If they are not, why does my Chiropractor at home use them?"

Our duty is to educate sick TO Chiropractic. We explain why only issue is vertebral subluxation and its adjustment; all other methods treat effects. In educating referred cases, they see the difference. This puts local Chiropractor on the spot, in our explaining why other methods are useless.

When these cases return to local Chiropractors, having been educated between right and wrong, they usually speak frankly about how they have been taken in on time and money from which they gained no benefit. This does not please home Chiropractor and he usually writes and takes us to task for an unpleasant situation which he alone created. HOW can The BJP CC solve THIS "problem"?

During the stay of our cases, occasionally it becomes necessary to give a second adjustment. It is common to have cases break down and cry because they need another adjustment. We have educated them to vital fact that when they DO NOT need one, mental impulse flow is getting thru and they are on road to health; that when they DO need another adjustment, nerve force flow has been obstructed, and they ARE NOT getting well.

6th. Thru research, The BJP CC is convinced sick people want to get and stay well. We are convinced they are tired of being stimulated and/or inhibited with no permanency or restoration of normal health in any such. Our research has convinced us such is possible with efficient, accurate, and proper timing of specific adjustment at right place, in right manner, at right time. We are convinced we have knowledge and ability to correct specific cause of any dis-ease. Because of this conviction and proof offered on worst cases in shorter time at less cost than ever before, our profession sends problem cases to The BJP CC, after which they are referred back to local Chiropractor for continued service.

Occasionally, Chiropractors CLAIM they, too, use our specific adjustment process. Some adjust other places than one we advised. Others do other foreign things, such as treatments of

various kinds. Each is undoubtedly sincere, thinking he is following our instructions, because "I always adjust atlas or axis you advised."

To do specific work demands that ONLY ONE PLACE BE ADJUSTED, EXACTLY IN WAY WE DESIGNATE; ONLY WHEN INTERFERENCE EXISTS, AND NOT ALWAYS THEN; NOTHING ELSE TO BE DONE IN ANY OTHER WAY, ANY OTHER PLACE. It calls for use of spinograph, checking with neurocalometer, neurotempometer, and neurocalograph; all preferably in a shielded and grounded booth.

When these rules are violated, it is NOT specific work, attaining specific results. HOW can The BJP CC solve THIS problem?

ABSENT NAMES

You will note the almost total absence of the terms "chiropractic", "chiropractor" in this presentation. The name D. D. Palmer is referred to as the Discoverer of the postulates of principle under discussion. You will note absence of name of your speaker — he presenting research in as impersonal a manner as possible.

Scientific research and its conclusions, when practically applied, transcend personal names and proper titles. There is no CHIROPRACTIC MATHEMATICS; it is THE SCIENCE OF MATHEMATICS. It would be foolish and farfetched for any man to apply HIS name. Haley's Comet may be named after its discoverer, but Haley's Comet rises above Haley and becomes an integral part of THE SCIENCE OF ASTRONOMY; and astronomy belongs to no one man; no one profession; but belongs to SCIENCE and those who use that service to benefit mankind. It may be Einstein's Theory, but it is THE LAW OF RELATIVITY. He who studies and applies mathematics or astronomy is a mathematician or astronomer, not a CHIROPRACTIC MATHEMATICIAN or a PALMER ASTRONOMER.

That which has been known as "chiropractic" is greater than any man or set of men in its ranks. So long as it was a mass of theories, one man's theories were as good or as bad as another's.

The days of "chiropractic" dogma, "chiropractic" dogmatism, and dogmatism of "chiropractors" are now superseded by a definite, positive, scientific specific of the cause of dis-ease and its correction. If it were not for the frequent and loose-jointed use of the term "science" as applied by physicians, osteopaths, Chiropractors, etc., to dis-ease and its cure, it could be said now that a series of proofs exists which permit us to arrive at a SCIENCE OF LIVING with known violations and adjustments.

It is our humble judgment that the character of work herein explained, as applied; properly understood, known, and accurately practiced, rises above human titles and the trials, troubles, and tribulations that selfish mortal men forcibly inject into daily endeavors to make a financial living getting sick people well.

We sometimes wonder if the time has not arrived to establish a new movement with a new approach, with this new profession now before us, that we might move forward with those who desire to move upward, to get this scientific research out of ruts of evils of the past as we understand those evils now in our ranks.

RESEARCHING HUMAN CRIME .

There are petty intrastate misdemeanors which city police ferret; others require county sheriffs; still others necessitate State Officials. Where crime is a major interstate penal issue and has national scope, where lesser officials have no jurisdiction and fail to catch the criminal racketeer, the National Federal Bureau of Investigation steps in. They turn every man, department, equipment and laboratories to work. Given time, they point the finger and get their man.

Our scientifically equipped Clinic is similar. It, for all practical purposes, becomes an international dis-ease crime laboratory; we seek whereabouts and hiding lairs of the master dis-ease subluxation criminal who maliciously steals health and life of individuals. We become a human dis-ease crime bureau. We turn our scientific dis-ease and health detectives loose to seek evidence, to catch, to convict and reform. They become a health court, judge, and jury. We have a pathological bertillion system

which identifies that which lowers the health standard of human society.

This Clinic is equipped to delve deeply and accurately into impossible dis-eased conditions; seek possible cause hide-outs, and turn on the burning searchlight of research until WE KNOW where THE vertebral subluxation is; locate its exact position which reduced quantity flow of mental impulse nerve force supply; how it is, why, and what to do to correct it to restore normal quantity flow of mental impulse nerve force energy supply to get the individual reformed back into a healthy society.

THAT is the primary business of THIS Clinic.

NEUROCALOMETER-NEUROCALOGRAPH- NEUROTHERMOMETER RESEARCH AS APPLIED TO EIGHT B. J. PALMER CHIROPRACTIC CLINIC CASES

The B. J. Palmer Chiropractic Clinic presents these case records to demonstrate the effectiveness of Chiropractic with cases medically diagnosed as multiple sclerosis, encephalitis or sleeping sickness, hydrocephalus, epilepsy, sciatica, cirrhosis and cancer of the liver, and tumors. It is hoped these records will benefit both the Chiropractor and any interested lay person who may chance to read them.

To the student of Chiropractic, the neurocalograph, (recording neurocalometer) records are an excellent study of nerve pressure patterns established before adjustment of existing subluxation and the corrective pattern cycles which follow during convalescent period.

Because of emphasis constantly being placed upon diagnosis by the medical profession, it is difficult for the average lay person to realize that the Chiropractor need not diagnose and therefore diagnosis is unimportant to him.

"Diagnosis" is defined by Dorland's Medical Dictionary as "the art of distinguishing one disease from another."

"Disease" is defined as, "a definite morbid process having a characteristic train of symptoms."

"Symptom" as, "any evidence of disease or of a patient's condition."

The medical diagnostician, by questioning and by use of diagnostic equipment gathers a group of symptoms or effects and names that group of effects, multiple sclerosis, encephalitis, epilepsy, etc. The physician then prescribes treatment for the effects, which is the proper procedure if one is to concentrate on the effects of a Cause.

The Chiropractor is concerned with Cause; his education, his equipment, and his work is with the Cause of effects; not with the effects of symptoms. Knowing that every effect has a Cause and every Cause produces an effect, this is a universal law, the Chiropractor must know what is the Cause, location of Cause, what produces it, and how to remove it.

As is borne out in these cases, the Chiropractor finds that vertebral interference to transmission of vital energy between brain and body produces these varied effects which are diagnosed as hydrocephalus, multiple sclerosis, etc. If given an opportunity, the Chiropractor, with his knowledge and his instruments can detect Cause and remove it even before the effect is bad enough to be diagnosed as any disease, or symptoms particularly noticeable to patient.

If Cause remains long enough, tissue changes will take place to produce substantial lesions, mal-function, and with their symptoms, could then be diagnosed as a disease. Also, when Cause remains long enough, resistance of tissues is reduced sufficiently to allow invasionary forces to produce morbid changes or functional disturbances, that ordinarily would be unlikely in healthy tissue.

In graph records that follow, reader will notice a constant pattern of Chiropractic procedure; namely, by intelligent use of the Neurocalograph, Chiropractor ascertains presence or absence of vertebral interference to flow of vital energy between brain cell and tissue cell. With this knowledge of presence or absence of Cause, he knows when or when not to adjust.

The by-product of vertebral interference to flow of vital energy between brain cell and tissue cell is heat. This heat is recorded by the Neurocalograph which is a scientific, temperature differentiating instrument indicating difference in temperature

which exists between two terminals. It is used to determine presence of nerve pressure at spine which interferes with transmission of mental impulses between brain cell and tissue cell.

Explanation of Use of Neurocalograph

Two terminals are placed one on either side of spine approximately over points where pairs of spinal nerves emit. Terminals are glided up spine at constant rate of speed by a neurotempometer, which is synchronized in proper ratio with speed of graphing paper. As detectors glide over a pair of spinal nerves, any differentiation in temperature is recorded by movement of an indicator needle, or in case of the Neurocalograph, the graphing pen. Study of these comparative temperature patterns properly interpreted reveals to the Chiropractor presence or absence of nerve pressure. Reader will note that evidence of vertebral interference, as directed by Neurocalograph, appears very much the same in each of following cases.

In the B. J. Palmer Chiropractic Clinic, everything is done to insure accurate comparative Neurocalograph findings. Daily Neurocalograph readings are made in a shielded and grounded booth which keeps out any variation produced by magnetic, electrical, or other external energetic variation. Instruments are kept at constant room temperature and relative humidity. Patients are read each day at same time to insure proper comparison.

Three important factors are involved in process of patient's return to health. First, existence of permanent damage; second, success of Chiropractor in removing cause (vertebral subluxation); and third, patient's cooperation. Existence of permanent damage limits correction that can take place, even with removal of cause and proper cooperation of patient. We feel justified in urging patients to place themselves under Chiropractic service immediately after first symptoms occur, rather than to wait until permanent damage has been done.

You will notice that in some of these cases, Chiropractic was employed very soon after symptoms were first noticed before much, or any permanent damage was done. Then the possibility of complete return to health is great. In cases who have extensive permanent damage existing, progress is limited.

CASE NO. 917

The severity of illness, unusual back-ground and neurocalo-graph records make this an interesting and valuable case study.



COLONEL WM. ALLEN

INTRODUCTORY CASE HISTORY

On November 30, 1940, while on active army duty, Captain Allen turned his left ankle which resulted in a minor fracture. He was admitted to the hospital for treatment of this injury the next morning, December 1, 1940.

While walking with crutches, pain developed between the shoulders and radiated to the region of the liver. Within a day or two he developed a rash similar to scarlet fever which soon cleared.

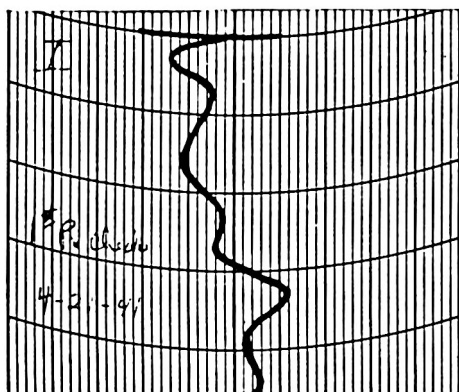
About five days after the fracture, jaundice appeared. He was told it was "acute catarrhal jaundice." He was treated for this condition in hospital at army camp until February 18, 1941, when he was transferred to army hospital at Washington, D. C.

Reporting at hospital, medical treatment was continued. After about a month of preparatory treatment for surgery, an operation was made in region of gall bladder for purpose of exploring that region to determine his condition and perform any necessary surgery. On or about April 18, 1941, he was told he had a "cirrhosis of the liver and a malignancy (cancer) in both liver ducts."

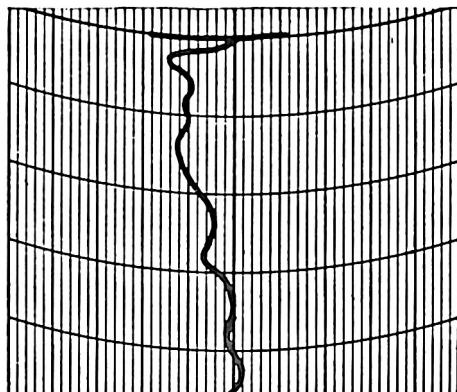
"This malignancy was preventing bile produced in liver from reaching gall bladder and intestinal tracts, causing a condition of jaundice." He was also told that the operation performed had been of no value whatever in helping him to overcome the condition and that there was nothing more that could be done for him surgically. He was later told by his wife that the doctors had told her "There was no chance for him to get well and she could expect him to die in a very short time."

Approximately a month after surgery he was able to move about and was granted a leave of absence. He then boarded a plane for Davenport, Iowa, arriving on the evening of April 22, 1941.

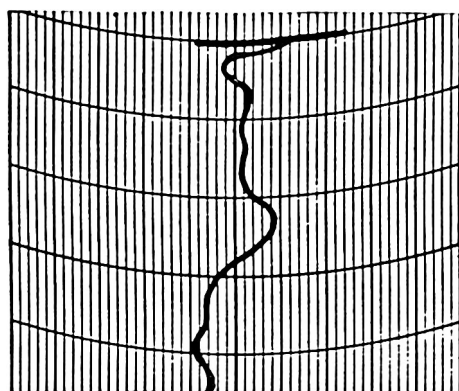
The graphs on opposite pages represent Neurocalograph (recording Neurocalometer) findings of the cervical spine (neck region). The top horizontal curved line of the reading represents the terminus — which is the occipital bone. The detectors glide up the neck starting at about the first dorsal vertebra.



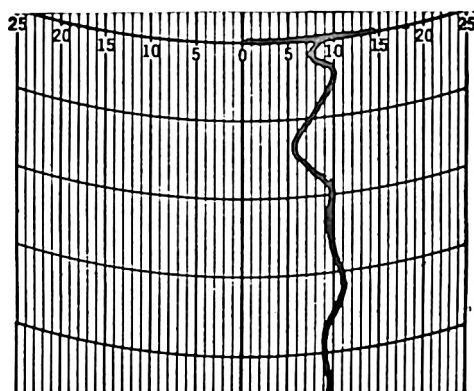
No. 1 4-22-41



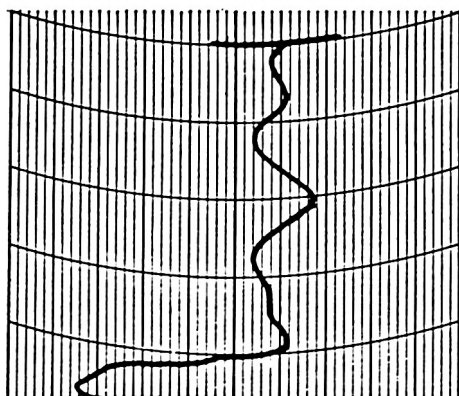
No. 2 4-23-41 A.M.



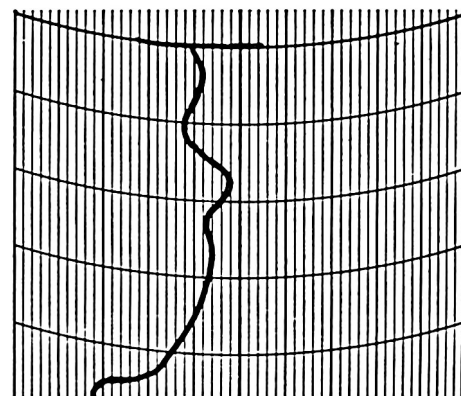
No. 3 4-23-41 P.M.



No. 4 4-27-41 .



No. 5 5-3-41



No. 6 5-5-41

1. On the evening of April 22, 1941, the case was read with the Neurocalograph within a very short time after getting off plane from Washington, D. C.
2. The following morning the second pre-reading was made. Weight 120 pounds. The case entered The B. J. Palmer Chiropractic Clinic for examinations and Chiropractic analysis.
3. The third pre-check was made the evening of April 23, 1941. These three consecutive Neurocalograph findings, though they may vary slightly in degree, are almost identical in pattern.

The following day case was adjusted. (NOTE: That adjustment was the only one made during the course of these readings.) Blood Bilirubin April 25, 1941: 19.9 milligrams per 100 milliliters of blood.

EXPLANATION OF BLOOD BILIRUBIN TEST: In the normal range we find 0.25 to 0.75 mgm per 100 ml of blood. In this case these high levels of bilirubin are indicative of hepatic (liver) damage with functional derangement of the polygonal cells and partial obstruction of the biliary capillaries.

4. Neurocalograph reading reveals same pattern but considerably less in degree than in the pre-checks.

CASE REPORTS:

April 28: "Bowels free, normal in movement. Color of stool: light yellow, had been dark green for about 4 days at the time entered clinic. Previous to that they had been yellow. Appetite good (has been all along). Sleep fair at night, sleep some during day. Uneasy feeling in neck yesterday and today."

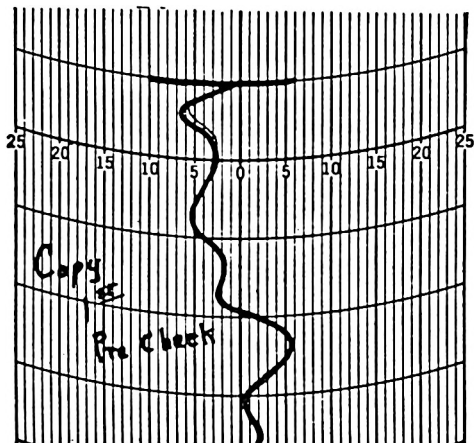
April 29: "Feel sleepy most of time. Appetite good. Neck popped slightly on turning at 2 different times this morning. Uneasy feeling in neck at times. Bowels moved 2 times yesterday and once today."

April 30: "Little change noticed since yesterday." Weight 125 lbs. Comparative Qualitative Blood Analysis:

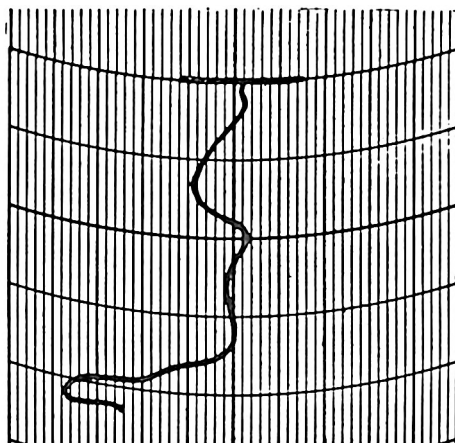
4-25-41: Blood bilirubin 19.9 mgm. per 100 ml. blood

5- 1-41: Blood bilirubin 17.6 mgm. per 100 ml blood

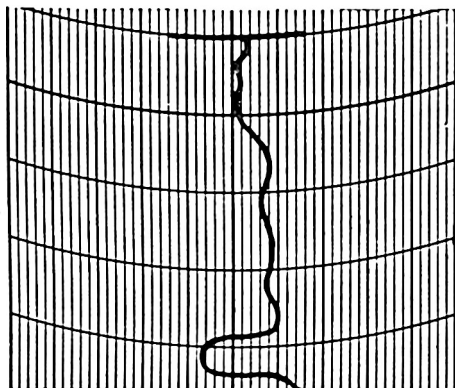
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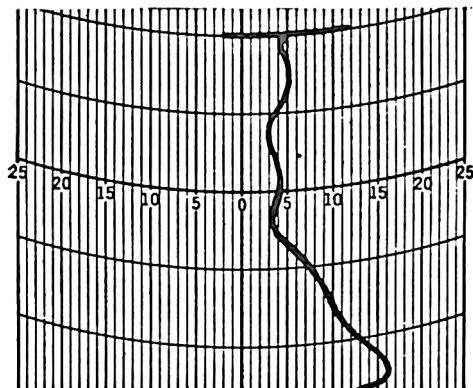
No. 1 4-22-41



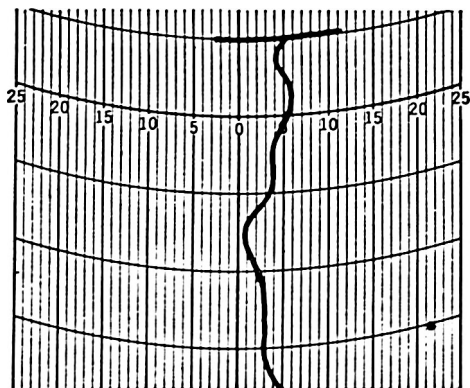
No. 7 5-7-41



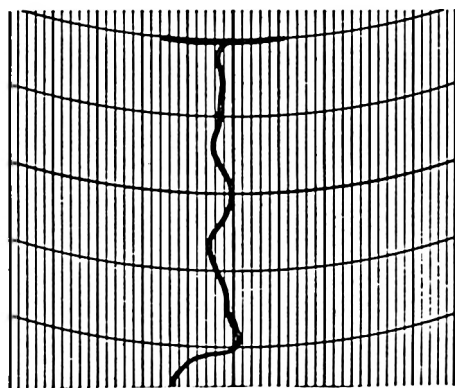
No. 8 5-8-41



No. 9 5-9-41

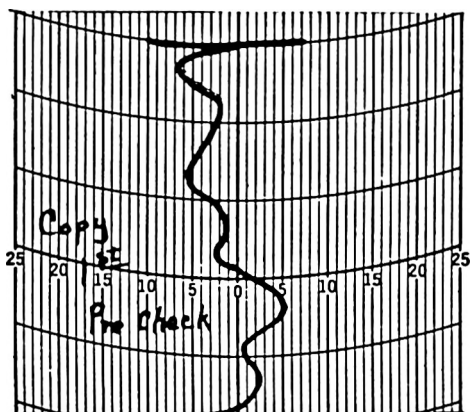


No. 10 5-11-41

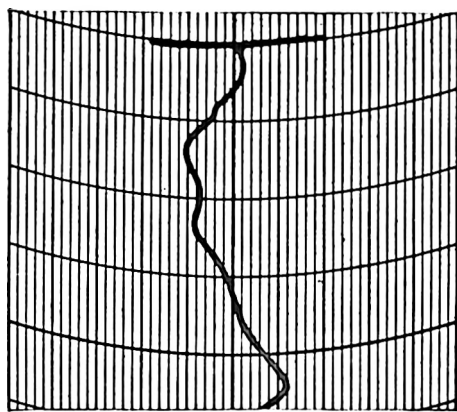


No. 11 5-12-41

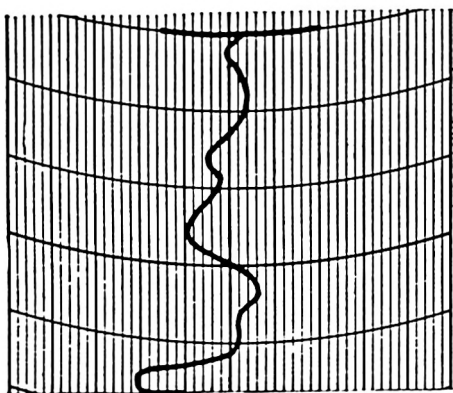
- May 2: "Had a good night's rest and sleep. Stool seems a little lighter than usual. Itching is not as bad as has been. Appetite good. Bowel movement good. Feel drowsy and sleep most of time. Feel better generally than usually."
5. CASE REPORT—"Sleep good. Bowels good. Appetite good. Neck popped time or two on turning. Felt stronger last two days."
6. CASE REPORT—"Felt considerably stronger last few days. Appetite still (dangerously) good, cannot eat enough. Bowels a little slow—once per day. Itch not so intense but still active."
-
7. CASE REPORT—May 7: "Appetite good. Bowels some looser, color slightly darker. Sleep some better. A cough I had when I entered clinic has cleared. It was very pronounced when trying to talk and when eating. General itching much less. Urine very clear. Gained 7 pounds last week."
8. May 8, 1941. Qualitative Blood Analysis:
4-25-41: Blood bilirubin 19.9 mgm. per 100 ml. blood
5- 1-41: Blood bilirubin 17.6 mgm. per 100 ml. blood
5- 8-41: Blood bilirubin 11.0 mgm. per 100 ml. blood
9. At this date patient left The B. J. Palmer Chiropractic Clinic and further daily case reports were not made.
10. Skin is gradually clearing and losing its yellowish cast.
11. Neurocalograph reading better today.



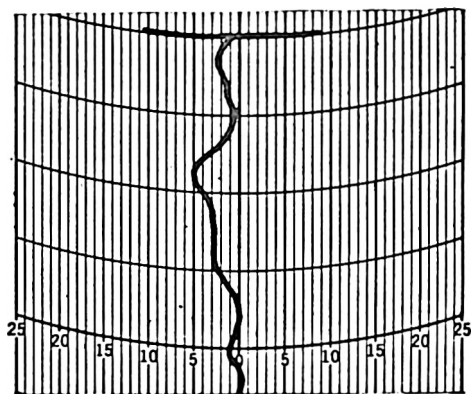
No. 1 4-22-41



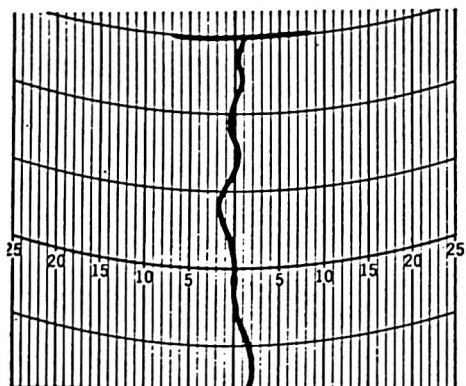
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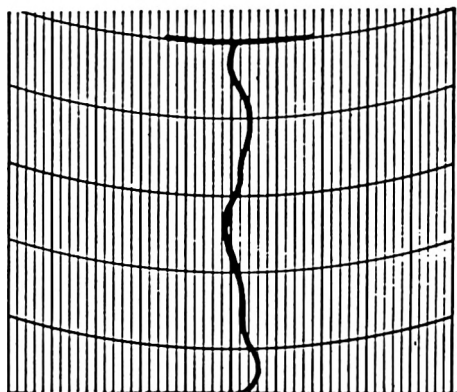
No. 13 5-14-41



No. 14 5-15-41



No. 15 5-19-41



No. 16 5-21-41

12. Neurocalograph reading not as clear as has been.
13. Evidence of nerve pressure seems to be returning. No adjustment given. We have found that very often evidence of the original pressure returns even in those cases that have been making rapid improvement. This does not mean, however, that the subluxation has returned and an adjustment should be made. In majority of cases, with proper cooperation on part of patient relative to rest and relaxation this evidence of pressure will disappear by Intellectual Adaptation.

Unless evidence of pressure returns as a direct result of an injury, a fall, or a jar, considerable time should be allowed before readjusting. Research has shown us that nerve pressure in chronic cases is revealed by permanent and consistent Neurocalograph patterns whether made over a period of several days or several months. After a Chiropractic adjustment is made this consistent pattern is broken. It may return but unless sufficient evidence exists that it is remaining consistent again — as originally, caution must be used in attempting further adjustments. We refer to this variation in pattern after an adjustment has once been given as "cycles of correction" and much damage can be done to the ultimate correction by an adjustic thrust given before pressure has returned permanently again.

Patient gained 5 pounds past week.

Qualitative Blood Analysis:

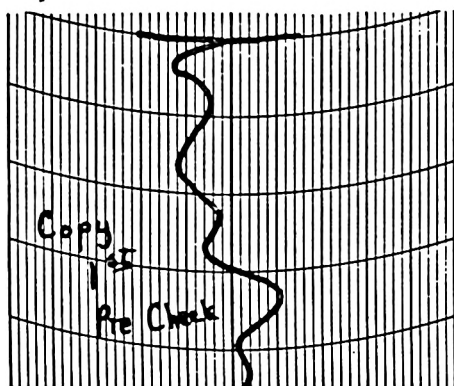
4-25-41: Blood bilirubin 19.9 mgm. per 100 ml. blood

5- 8-41: Blood bilirubin 11.0 mgm. per 100 ml. blood

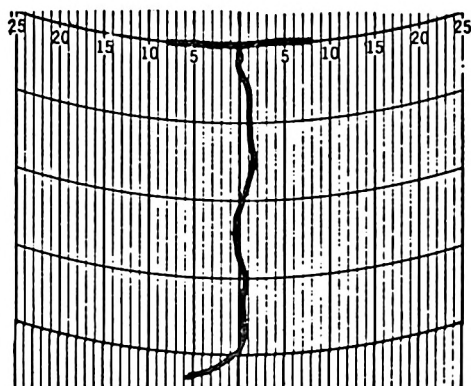
5-15-41: Blood bilirubin 7.2 mgm. per 100 ml. blood

14. Neurocalograph pattern clearing, showing that evidence of pressure was in the normal cycle of correction. Only damage would have been done had an adjustic thrust been given the previous day. You will note in further Neurocalograph findings there is a tendency for clearer readings than at any time previously.
15. Reading clear.
16. Qualitative Blood Analysis:

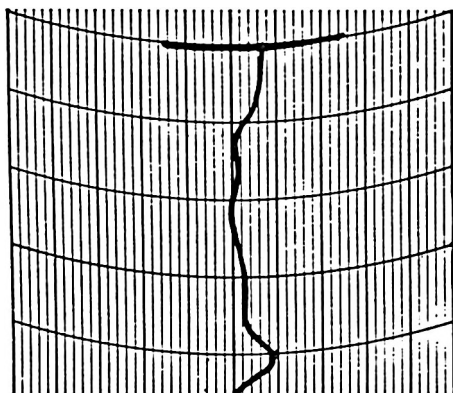
4-25-41: Blood bilirubin 19.9 mgm. per 100 ml. blood
5-15-41: Blood bilirubin 7.2 mgm. per 100 ml. blood
5-22-41: Blood bilirubin 4.7 mgm. per 100 ml. blood



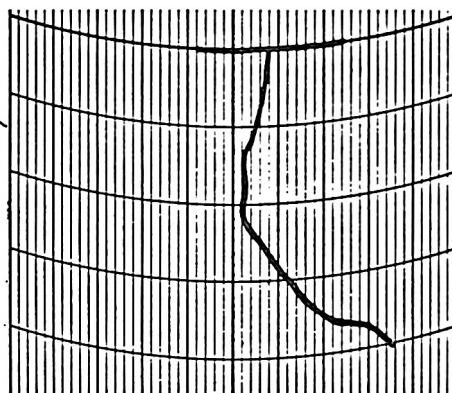
No. 1 4-22-41



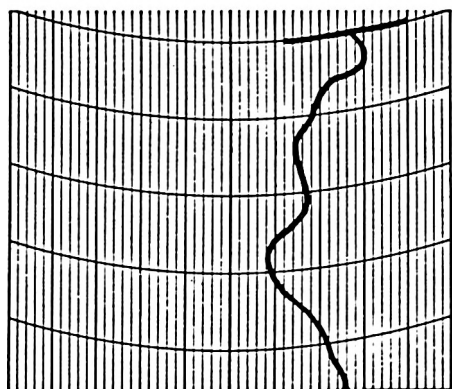
No. 17 5-26-41



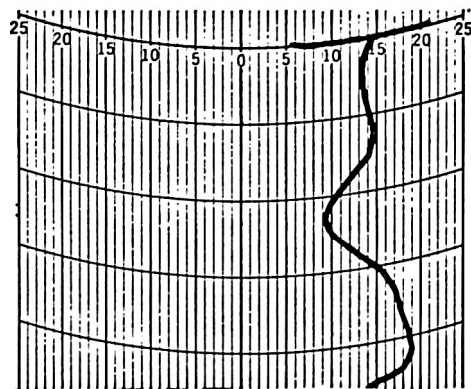
No. 18 5-30-41



No. 19 6-5-41



No. 20 6-10-41



No. 21 6-11-41

17. Neurocalograph reading very clear.

Qualitative Blood Analysis:

4-25-41: Blood bilirubin 19.9 mgm. per 100 ml. blood

5-22-41: Blood bilirubin 4.7 mgm. per 100 ml. blood

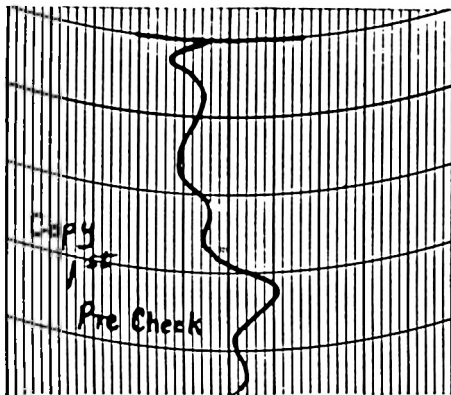
5-29-41: Blood bilirubin 3.5 mgm. per 100 ml. blood

18. Good Neurocalograph reading.

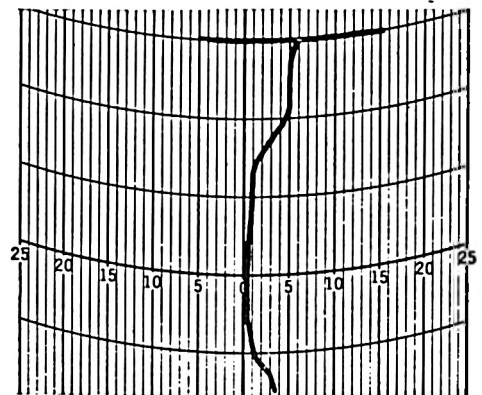
19. Good Neurocalograph reading.

20. Neurocalograph pattern is rough but note upper portion of it is directly opposite the original. Patterns opposite original reading are almost always transitory. It has little significance and, unless this pattern remains over a period of considerable time, should not be adjusted.

21. Pattern clearing.



No. 1 4-22-41



No. 22 6-15-42

Chemical analysis of the blood of Capt. Allen showed a hyperbilirubinemia of a type due to functional insufficiency of the polygonal cells of the liver. In such a condition due to parenchymal damage, the polygonal cells are unable to remove bilirubin from the blood and thus cannot excrete it in the bile. As a result the blood bilirubin level increases until it diffuses thru the capillaries and appears in the tissues and urine. This becomes evident by the development of jaundice and bile pigments in the urine.

Reference to the blood chemistry report shows, following the first adjustment, a steady drop in the blood bilirubin level as it approached the normal level of 0.2 to 0.5 (0.25 to 0.75) mgm. per cent. This was closely paralleled by a clearing of the jaundice and a decrease in the bile pigments in the urine.

Date	Blood Bilirubin	Bile Pigments (Urine)
4-25-41	19.9 mgm.	Positive +
5- 1-41	17.6 mgm.	Positive +
5- 8-41	11.0 mgm.	
5-15-41	7.2 mgm.	Traces
5-22-41	4.7 mgm.	
5-29-41	3.5 mgm.	Negative
6- 5-41	3.5 mgm.	
6-10-41	2.3 mgm.	

22. Approximately one year and two months later patient returned, coming through Davenport on a furlough.

On being rechecked in the Clinic, the Neurocalograph reading was still good. He had received no adjustment since leaving the year previously. Nor did he feel the need of further Chiropractic attention. The patient reported he felt in very good health.

Attesting to his report of "doing fine" was the insignia of major on his uniform.

A letter later gave us information of another promotion to Lieutenant Colonel.

After the Battle of The Bulge in Europe, he returned to the States in August, 1945. Then February 3, 1946, he was relieved from active duty with the rank of Colonel of the Infantry.

As his photograph reveals, Colonel Allen looks and he reports that he is in the best of health.

The following letter in his own words is the story of his illness. It is given here with the hope that others may profit by it.

COLONEL ALLEN'S LETTER

"After three years of R. O. T. C. during my first three years of High School and the attendance of three Summer Citizens Military Training Camps during the same years, I qualified for appointment as a Second Lieutenant in the Officers Reserve Corps, prior to my eighteenth birthday. I accepted this commission and became a Reserve Officer during my Sophomore year in College. I graduated from the Western Kentucky Teachers College, receiving the Bachelor of Arts Degree, and became a High School Principal before I had reached the age of twenty-two. During the following five years, I taught and supervised in this capacity, and also attended Military Camp for two or more weeks every summer that I could, having been promoted soon after leaving college to the rank of First Lieutenant.

"When the Civilian Conservation Corps was established and set up by the Army, I was ordered to active duty as a First Lieu-

tenant, and in about eighteen months I became a Camp Commander. Shortly thereafter I was promoted to the rank of Captain. After almost four years of this work, the Army adopted a policy of relieving and replacing all officers on this duty who had been on duty for more than two years. I would have gladly remained on duty at this time and would have welcomed the opportunity to make the Army my full-time career but such was not in store for me.

"Having been a Chiropractic patient for a few months prior to my relief from active duty and having obtained an improvement in my health as a result, when the Army Medical Doctors had only given temporary relief, I decided to become a student of Chiropractic. I graduated from the Palmer School of Chiropractic in July of 1939 and opened an office in Columbia, Tennessee, where I had a rather successful and enjoyable year of practice, which was rather abruptly terminated by my being called back to the Army on November 9, 1940. This was the only time that I had ever received Army Duty that I didn't want and hadn't asked for.

"A few hundred of us were ordered to the Infantry School at Fort Benning, Georgia, where we began intensive training to prepare us for the great Army Expansion Program that was taking place as the result of the Selective Service Act.

"Three weeks after reporting for duty, I accidentally broke my left ankle, Nov. 30, 1940. The next morning I became a patient in the Fort Benning Station Hospital, where the ankle was X-rayed and placed in a tight bandage. About three days later the bandage was removed and I began receiving whirlpool (hot water in motion) treatments for it in the Physical Therapy Department. The ankle gave me very little trouble and practically no pain. On about the second or third visit to the Physical Therapy Department I caused quite a disturbance when I mentioned to the female technician in charge that I was itching quite a bit and we noticed that a red macular rash was appearing just about all over me. I was immediately rushed back to the ward where I became the chief object of interest. My temperature was normal, my throat was not sore, yet I looked like a nice case of Scarlet Fever. Doctor after doctor came in and looked me over and I was hustled off to quarantine. In quarantine, the nurse

who cared for me used all the precautions imaginable to keep from carrying the germs of my condition to other patients whom she contacted, such as putting on a full-length clinic coat and a special cap to prevent germs from getting on her nurse's uniform and her head (or to impress the patient) and washing her hands in a special antiseptic on leaving the room. I was particularly impressed with the fact that no matter how many doctors came into the room to look at me, and they were numerous, they took no such precautionary measures.

"After about five days of the redness and the itching, my color began to change from a red to a yellow and my eyes began to take on the color of gold and my condition was diagnosed as 'Acute Catarrhal Jaundice,' which I was assured would probably not last more than two or three weeks. When the jaundice diagnosis was reached, I was placed on a fat free diet as a measure to limit the production of bile in my liver. This bile was not getting through the bile duct to the small intestine and if produced it would only be backed up in the liver and picked up by the blood vessels and carried to all the tissues of my body and eventually eliminated by the kidneys. This made the urine as dark as walnut stain, and made my skin a real dark yellow, almost a green. There was supposed to be an inflamed condition in my bile duct that was closing it to the extent the bile just couldn't get through. Various examinations were made to see if it could be determined just what was causing this interference to the flow of bile along its normal course. All were of no avail. I was jaundiced but no one could tell why. Blood tests were made weekly to determine the amount of bile in my blood. This looked good for the record but was of no value toward getting me well. I was told quite often that I could expect to get better most any time as such a condition seldom lasted more than three weeks, and that no one ever died from jaundice. The Doctor didn't explain that quite often people died from conditions of which jaundice is only a symptom.

"In a few weeks' time my ankle was well enough but my jaundice did not improve. The hospital granted me a pass occasionally and I went into the nearby town of Columbus, Georgia. I always went to the office of a local Chiropractor, a classmate of mine at Palmer School. He adjusted my neck a few times, most of the time Atlas ASR-A, but I recall that on one occasion after making

a new X-ray of my spine, he adjusted Axis PRI on a Hylo Table. The pressure as indicated by the Neurocalometer would always check out but seemingly would not stay out as I always needed an adjustment each time he checked me. Perhaps the short time the pressure did remain out was sufficient to keep me living until the correct adjustment was given, the one that held. As time went on, I began to wonder if this was one of those cases in which surgery must be resorted to. The Chief of Surgery at the Ft. Benning Station Hospital examined me and did not think so. My weight was down below 130 by the end of January and my color was no better. The doctors still encouraged me as best they could about my condition. They tried everything in their power from enemas to the usual medical procedure of gall bladder draining, but all without the desired results. The intense itch that this condition had started with had continued and was much worse at times. Nothing they could put on me seemed to stop it, and I refused to take any medicine that would have quieted it down by a narcotic effect. The only thing that gave me any relief was plain old scratching, and I did so much of that my fingernails thickened to compensate for the extra work they did. The only difficulty with this was that I would scratch the skin off during my sleep, and at times when I was awake. Hot water would ease the itching in my hands. I was forced to quit putting my hands in it because I was actually burning them at times and my knuckles were cracking open.

"Early in February, I suggested to the Ward Doctor that maybe I should be sent to the Walter Reed General Hospital in Washington, D. C., which was reputed to be the best the Army had. They seemed to like the idea and got busy with the necessary formality of such a transfer. I had failed to respond to their treatment and was going rapidly in the other direction, so they were glad to have the opportunity to 'Pass the Patient on.'

"When I arrived at Walter Reed on February 18th, I was made strictly a bed patient and was not allowed to lounge around the ward in chairs and seldom allowed off of my bed, as had been the case at Fort Benning. A few days after my arrival there, Col. Norman T. Kirk, Chief of Surgery, and some others came to see me.

"Col. Kirk, who later became Major General Kirk, Surgeon General of the Army, told me that I must have an operation.

Although he didn't know what was causing my jaundice, he felt that an exploratory operation should be made to see if there was any corrective surgery that could be performed to help me to get over this jaundice. I was assured that I might never be as well as the average individual afterwards, but that they hoped to be able to make some correction that would save my life and permit me to live almost a normal life afterwards. Col. Kirk had the reputation of being about the best surgeon the Army had. They told me that I had the privilege of refusing the operation when I asked just what I had to say about it. They said I could think it over and let them know in a few days.

"I called my wife, who was in Kentucky, that night and asked her to come over. A few days later she arrived. She suffered quite a shock when she saw me in the condition I was in. She had no idea I was so emaciated, and still thinks I did her a great injustice by not telling her the extent of my condition so she could have joined me sooner.

"We decided that the operation might be the best and told the doctors so. They began to try to build me up to where I could stand it. Any jaundiced person is a bleeder because his blood will not coagulate fast enough, making the possibility of death from hemorrhage very great. I was fed and injected periodically with a vitamin 'K' preparation which is supposed to overcome this difficulty. Along with all this I was fed both orally and through the veins in an effort to give me a little more strength for the ordeal to come. All this called for more blood tests to see just what the condition of my blood was. I must have been bled more than a gallon during the course of my illness.

"On March 21st, as I recall, the operation was performed. Needless to say, I lived through it, but was told by the Attendant in the Surgical Recovery Room that I came so close to dying that I had to have blood plasma administered for surgical shock and an oxygen tent applied to tide me over after the operation before I regained consciousness.

"When Col. Kirk came in to look me over the next day, I asked him what he had found when he cut me open. He said that he was in too much of a hurry to tell me then, but that he would be back in a day or two and tell me all about it. I soon learned as I

suspected then, that he was afraid that what he had to tell me might not be so good for me so soon after the operation.

"I spent the next two weeks flat on my back most of the time. Drainage tubes that had been left in the gall bladder and the common bile duct were withdrawn at the end of two weeks, after no bile had flown from my liver to them. I was given my first buttered toast in months, along with a little more fat in my foods, following the operation, in an effort to try to force the flow of bile from the liver to the intestines, all without the desired results. My wound was healing but my jaundice still remained with me. I was soon up and about the place in a wheel chair. Spring had come and the grounds at Walter Reed were beautiful. Perhaps my condition made them seem all the more so.

"Just before time for the lights to go out one night, about the 19th of April, and almost a month after the operation, Col. Kirk came through the ward on an inspection and stopped by my room. I asked him when he was going to tell me what he found when he cut me open. He replied that he would tell me then, told me to sit down, and he sat down, then asked if I could stand a shock. I replied, 'I can take it, go ahead.' He then proceeded to tell me that when they had operated on me that they had hoped to find some condition that they could correct, but they had not. He said that they had found an old flat gall bladder and biliary system with no bile in it, that I had a cirrhosis of the liver and a malignancy (cancer) in both of my liver ducts, that the liver was an old green slick liver and had not reached the "Hob-nail" stage, and that when that happened ascites (fluid in the abdominal cavity around the intestines and the organs) would set in. He also told me that they had taken samples of tissue from the bile duct and from the fundus of the gall bladder which had tested negative (non-cancerous) in the laboratory. He told me that he was very sorry that nothing they had done for me had been of any value to me and that there was nothing more surgically that could be done for me. (Medicine having already failed.) (I never learned until I was well on the road to recovery that he had told Mrs. Allen that I might live a month or I might live two or three months, but for her to not be surprised at my passing at any time.) I thought this last statement was very fair in that he readily admitted that all they had done for

me had been of no value to me. Col. Kirk went on to say that his former Chief of Surgery, Col. Kellar, M.C., retired, living in Washington, D. C., came out and stood with him on the operation and that they concurred in the diagnosis. (Col. Kellar was supposed to have been the outstanding Army Surgeon up to that time.) Col. Kirk explained that he didn't actually see the cancer in my liver as any cutting into my liver would probably have killed me, but that they had had a number of other cases with similar symptoms and they were all cancerous.

"Upon being told that all had been done that could be done for me, I asked Col. Kirk if I might have a sick leave to go to my home in Kentucky. He said that I might and I asked if it would be for a month, two months, or what? He replied that I could have a month and if I showed any signs of improvement or did not get any worse to let him know and he could then give me another month, but if I got the least bit worse, to hurry right back to the hospital. I have often wondered just what their action would have been had I gotten worse and hurried back. I left Walter Reed on April 22nd and flew direct to Davenport, Iowa, and entered The B. J. Palmer Chiropractic Clinic the next day, postponing my trip to Kentucky until later.

"On entering the Palmer Clinic I was examined both Chiropractically and Medically and wish to say here that no medicine was ever given me. I believe ten different films were made of my spine, including A-P Flat and Stereos, Diagonal Stereos, Lateral Natural, Full Spine Stereos, and I believe, Vertex Stereos. The Axis vertebra was found to be subluxated Posterior and Right. The Neurocalograph showed a Spinal Cord pressure due to this subluxated vertebra. When I arrived at the Clinic I was still as brown as an Indian and weighed only 120 pounds. Very few of my friends there recognized me.

"The day following my entry into the Clinic, April 24th, will always be a red-letter day on my calendar. It was this day that the Spinal Correction of the Cause of my illness was made. When Dr. B. J. Palmer saw me for the first time in the Neurocalograph Grounded and Shielded Booth, his words of encouragement were: 'Doctor, I hope you haven't waited too late.' I shall always remember how B.J. poked me as he was getting me ready for the adjustment, asking if I had ever had an adjustment and

what price adjustment did I want now, etc., all to get me better relaxed and to get my mind off of my neck so that the adjustment could go through freely and without interference. I was giving all the cooperation I could, lying on my left side on the side posture table, when B.J. snapped the adjustment through. There had been no doubt in my mind since that time, for I knew then that I had just received an adjustment. I was checked with the Neurocalograph soon afterwards and the pressure was gone. I was taken back to one of the quiet rest rooms where I immediately fell to sleep to awake when I was called about three hours later.

"Three days after the adjustment I could see evidence of bile getting through to my intestines, the fats I was eating were being digested. The 'Cause' of my illness had been corrected. During the seven weeks that followed I regained my weight back to within my normal range and my color returned to normal. The rapid progress with which I regained my health, weight, and normal color can best be understood if the following chart of progress is read slowly and with careful deliberation.

Date	Weight	Blood Bilirubin (Laboratory Exams)
4/23/41	120 lbs.	Entered Clinic and examined
4/24/41	Received Adjustment, Axis Vertebra — PR. Side-posture table	
4/25/41	...	19.9 mgm. per 100 ml.
4/31/41	125 lbs.	...
5/ 1/41	...	17.6 mgm. per 100 ml.
5/ 7/41	134 lbs.	...
5/ 8/41	...	11.0 mgm. per 100 ml.
5/15/41	141½ lbs.	7.2 mgm. per 100 ml.
5/22/41	146 lbs.	4.7 mgm. per 100 ml. (End 1 Month)
5/29/41	153½ lbs.	3.5 mgm. per 100 ml.
6/ 5/41	155 lbs.	3.6 mgm. per 100 ml.
6/10/41	156 lbs.	2.3 mgm. per 100 ml.
6/17/41	159½ lbs.	...

"In about two weeks after the adjustment I abandoned my wheel chair. In two more weeks I was driving my own car and going where I pleased. When I left Davenport at the end of seven weeks, after having received only one adjustment, a 'Spe-

cific Adjustment,' I drove my own car back to Washington by way of my home in Kentucky. It was indeed a pleasure to have to introduce myself to Col. Kirk and members of his staff so soon after they had given me up to die, for they did not recognize me.

"Col. Kirk said that he was glad his diagnosis and prognosis of my case were wrong. The diagnosis was changed to 'Hepatitis' (Inflammation of the Liver). Col. Kirk had me brought before the Chief of Medication, Col. Freer, and told him he just wanted him to see the 'Marvelous recovery this boy has made.'

"The following Saturday Col. Kirk called special attention to the recovery I had made to a group of other officers (Doctors) during one of their routine weekly inspections of the wards, pointing out to them the condition I was in and how the operation had done me no good, and how I had gone home and stayed two months and come back a well man.

"My weight had come back to me much faster than my muscles, which left me in a sore and generally weakened condition. On the basis of this, Col. Kirk gave me another month of sick leave which began about July 10th. While on this leave, I wrote Col. Kirk a full explanation of where I had gone when I first left the Walter Reed General Hospital in April and just what was done for me and why, explaining also that I was a Chiropractor. I further explained that I had both Chiropractic and Medical Clinical records in my possession that I felt would be of interest to him. This was his first information that I had been to a Chiropractic Clinic.

"When I returned to Walter Reed on or about August 9th, and saw Col. Kirk the next day, he made no mention of my letter. A few days later it was decided that the scar from my first operation was weak, or that I had what was called an incisional hernia, and that I must have a second operation to patch it up. This operation was performed on or about Aug. 18th by Col. Kirk's assistant, Lt. Col. Duggins, while Col. Kirk was away on leave. Just a few nights before I left the Hospital, Col. Kirk came by my room again and stopped to talk with me. He told me that he had received my letter, and that it was a good letter. He then said, 'Whether Chiropractic got you well or what got you well is not for me to say. The thing that I was interested in was that you got well, and you did. I will say this, however, there was nothing

we did for you, our operations or anything else, that was of any value what-so-ev̄er to you.' He then looked at my Neurocalograph and other records and received a short explanation from me as to the meaning of these records. He admitted that he had had little contact with and knew very little about Chiropractic. I explained to him that most of the patients we received were the cast-offs of the other healing professions, and that when we got results on these we felt that we had done something.

September 14th

"A few days later, after nine and a half months of hospitalization, I returned to duty at Fort Benning, Ga., on a full duty status. After completing three months of intensive training at the Infantry School, I was transferred to Camp Wheeler, Ga., where I commanded a Heavy Weapons Training Company for about six months, which terminated when I was shipped to Panama and assigned to the Fifth Infantry Regiment, third oldest unit of our Army. During my stay with this regiment of about twenty-three months, six of which I served in Panama in Jungle Training and Canal and Coastal Security work, the Regiment came back to the States and was converted into a Mountain Infantry Regiment, part of the 71st Mountain Infantry Division. I was promoted to the rank of Major shortly after I went to Panama. Shortly after we returned to the States, I attended the Battalion Commanders Course at the Infantry School and assumed command of the Second Battalion of the Fifth Infantry and led it through all phases of Mountain Training and through what the War Department termed the 'Most rugged maneuvers that any of our troops had been through' in the mountains along the coast of California. During this period I had been promoted to the rank of Lieutenant Colonel. Shortly after 'D' Day in Europe, I was ordered flown to England along with a large number of Colonels and Lt. Colonels to be used as replacements for the large number of such grades who were being killed or wounded in combat. I was assigned to the 5th Armored Division about July 3, 1944, in Southern England. Before the month was out, we were in Normandy, France. On August 1st we started rolling on that long, mad, bloody rush across France, Belgium, Luxembourg and into Germany on the 14th of September. In November, after the 28th Infantry Division had lost so heavily,

I was placed in command of the 1st Battalion, 112th Infantry Regiment of that Division. I held this command during the Battle of the Bulge and through subsequent operations until after the War in Europe ended. I was returned to the States in August of 1945 and relieved from active duty on February 3, 1946, with the rank of Colonel of Infantry.

SUMMARIZING

"I was a practicing Chiropractor holding the rank of Captain in the Army Reserve Corps when I was ordered to active duty in 1940. Soon after reporting for duty, I broke an ankle, entered an Army Hospital where I soon developed a Jaundiced Condition and became seriously ill. I was given all the Medical Treatment the Army offered and then operated on by the best surgeon in the Army's best hospital, told that I had Cancer of the Liver and that nothing they had done for me had been of any value to me and that there was nothing more they could do. I was given up to die. I left the Army's best Hospital and entered the World's best Chiropractic Clinic, was given one, and only one, Chiropractic Adjustment by the World's Greatest Chiropractor which corrected the 'Cause' of my illness, my health returned, and I returned to the Army's best Hospital where I had to introduce myself to the Surgeon who had given me up to die and who is now Major General Norman T. Kirk, Surgeon General and head of the Medical Corps of the U. S. Army. I was returned to duty, served my Country through many months of Combat, decorated with the American Bronze Star Medal for 'Heroic Achievement' on the Battlefield, and with the French Croix de Guerre for combat service with the First French Army in the reduction of the German Colmar Pocket, given the Combat Infantryman's Badge, promoted three times, relieved from duty as a Colonel of Infantry, and am again a practicing Chiropractor. The adjustment I received on April 24, 1941, put me through a war, as I had no other adjustment until September, 1945. It not only put me through a war, it also returned me to the practice of Chiropractic.

WM. H. ALLEN,
Colonel Infantry,
0-223875"

Following telegram received from Macon, Georgia, April 24, 1951:

"Dr. B. J. Palmer,
"Davenport, Iowa.

"Ten years ago today you saved my life. Thanks again.

"Col. William H. Allen."

CASE NO. 1131

This set of Chiropractic clinic records is quite typical of those patients suffering from "Low back pain and sciatic trouble." The Neurocalograph reveals the causative factor in this case to be quite remote from the area of pain or from the area of spinal distortion as shown by the spinograph. The average uninformed mind usually thinks in terms of direct manipulation of the affected areas when the spine is concerned, rather than with the correction of the cause which is usually in the atlas axis region of the spine.

Neurocalograph records made before the adjustment and those following give proof to the location and removal of nerve pressure which was the cause of this "Low back pain and sciatic trouble." The comparative spinograph records verify the correction taking place.

History

Right sciatic neuritis; sciatic trouble began acutely about May, 1942, after gradual onset since March, 1941, following effort at lifting.

Chronic head catarrh.

Entrance Physical Examination

Femur twisted by muscle pull on right hip. Pressure upon muscle in right thigh causes spastic action of these muscles; also spastic action of these muscles if leg is straightened.

Patient's Entrance Remarks

Some 14 months ago a physical strain of lifting a bed patient was felt slightly. This was followed by a chain of over work, worry, and a variety of strains that depleted energy to a danger point. The result was a general break down and specifically inflammation of the whole sciatic nerve distribution of right side.

For over a month very little sleep was had. Adjustments at intervals over the year had sometimes helped and sometimes not. One month ago I closed my office and placed myself under a local competent Chiropractor who greatly helped me.

One day one of my patients who was following my progress was moved to ask why I did not go to The B. J. Palmer Chiropractic Clinic at Davenport, Iowa. My answer was that finances did not permit after the reverses of the past year. Next day she returned with another faithful follower and they informed me that I was going because they had gone out and raised the funds among the present and former patients. Talk about the thrill of a life time!

1. Full spine spinograph tracing reveals bad curvature. Spinograph an 8 x 36 taken A to P — Standing posture.

Specific cervical pictures revealed axis subluxated posterior and right.

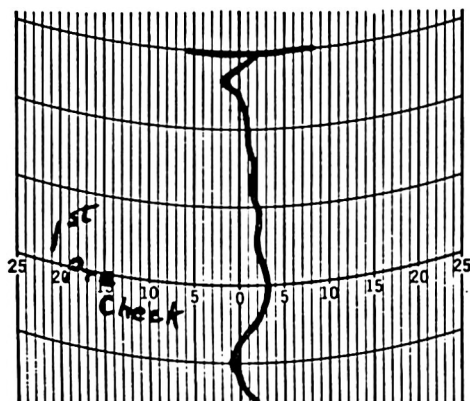
- 1a. Neurocalograph reading before adjustment.

Beginning at the bottom approximately at sacrum apex patient was read up the spine to about the level of the first dorsal where cross mark identifies stop. (Cross mark accidentally left out in copying 1a.)

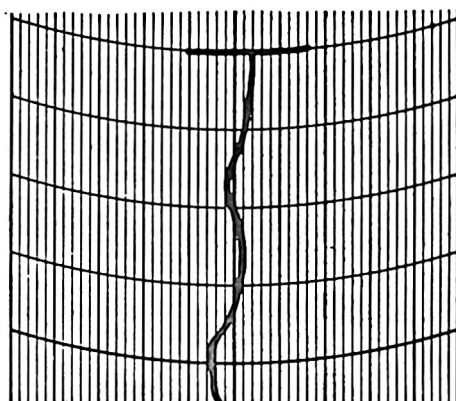
Reading unit changed for completing reading of cervical region. (We find it advisable in reading the full spine to use separate detectors for reading below first dorsal and for reading from first dorsal up because:

1. Operator's hand over a period of time warms the detectors.
2. In order to have constant speed throughout the cervical region in using the Neurotempometer, it is necessary to have the fulcrum close to the tip of the detectors.)

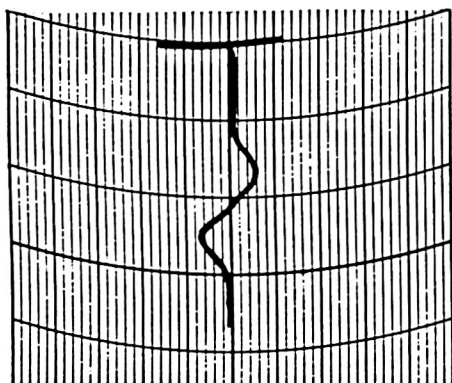
Clinic patients are read full spine when they enter and when they leave only.



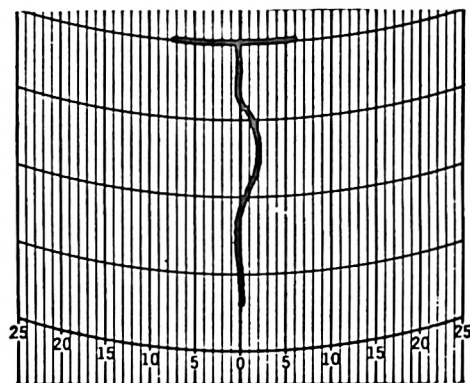
No. 2 6-2-42



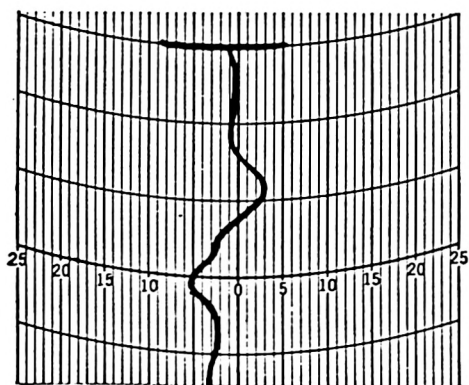
No. 3 6-2-42



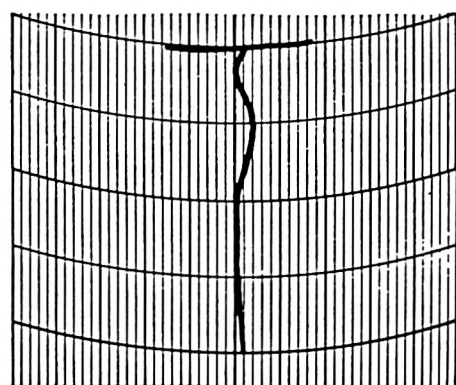
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No. 5 6-4-42

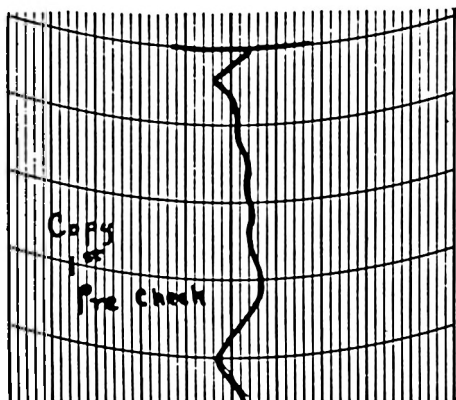


No. 6 6-5-42

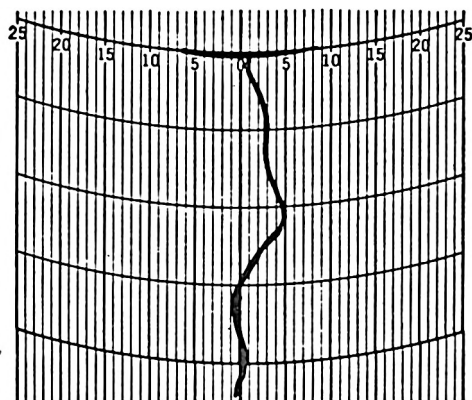


No. 7 6-6-42

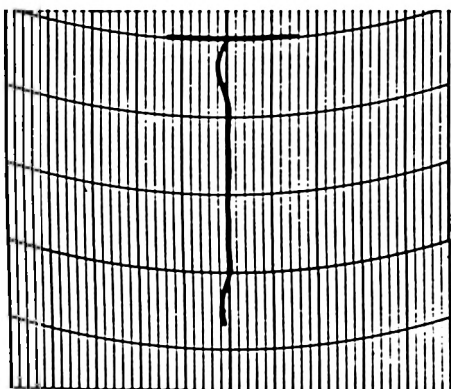
2. We are mainly concerned with the cervical region which is copied here. Please note the pattern that exists throughout the cervical region and the break reading at the top just below the heavy horizontal line which indicates the base of occiput. Patient was adjusted Axis PR. (Posterior and right.)
3. Patient allowed to rest for a few minutes and then re-read revealing the break reading gone.
4. *Neurocalograph Reading*: Next day reveals break reading gone. Pattern changing in middle cervical region.
Patient Report: "Head felt clearer as though load had been lifted. Felt glow over body, especially in hands and feet. A feeling of lassitude, exhaustion, and a sense of hunger. For an hour after adjustment could not stretch out straight on back due to contraction of right leg muscles." (Our patients at the Clinic, after they have received an adjustment, are wheeled back on a special ambulatory cot and placed in bed. They are required to rest for at least 3 hours, sleep if they can.)
"After an hour, relaxation was possible. Right leg warmed up after being cold for a month."
5. *Neurocalograph Reading*: Shows improvement of pattern.
Patient Report: "Have been tired and feel as though I could sleep indefinitely, but as soon as I went to bed entire right leg started pulling and aching from sacrum to foot. No sleep until after breakfast. Closed eyes about 10 times but each time a violent contraction of leg muscles prevented sleep. Another good bowel movement like yesterday. Hungry most of time."
6. *Neurocalograph Reading*: Increase in pattern in middle and lower cervicals. Atlas-axis region clear.
Patient Report: "Seem to be much more straight this p. m. Gnawing sensation continued again last night in right leg but managed to sleep about 7 hours in spells. Hip is sore today but ankle a little warmer. Feel definite improvement."
7. *Neurocalograph Reading*: Pattern much improved.
Patient Report: "2 hours sleep this morning was all. No cramping last night. Lumbar region seems stronger this morning. Foot and ankle have more life. Good bowel movement this morning; none yesterday."



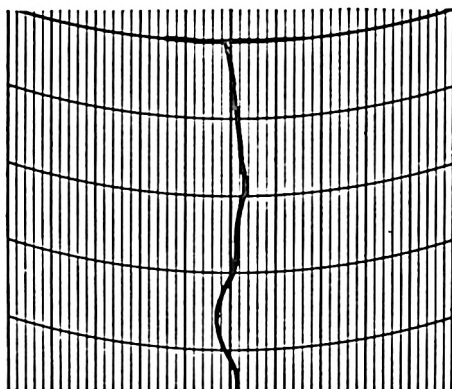
No. 2 6-2-42



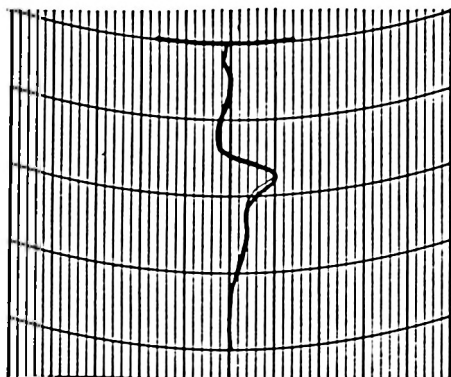
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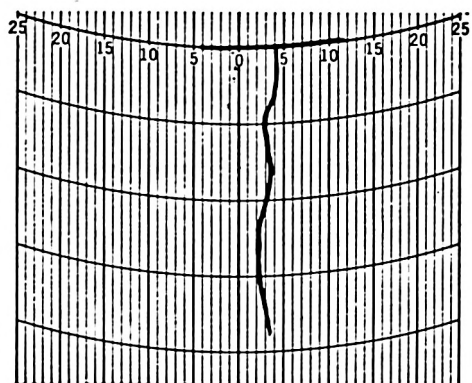
No. 9 6-9-42



No. 10 6-10-42



No. 11 6-11-42



No. 12 6-12-42

First graph is a copy of the Neurocalograph reading of cervical region before the patient was adjusted on June 2, 1942.

8. *Neurocalograph Reading*: Slight increase in pattern over last reading.

Patient Report: "About 8 hours sleep Saturday night and same Sunday night. Feeling better for the sleep. Kidneys seem to be unloading something judging from odor of urine. Less soreness but more stiffness in right leg; can only stand a few minutes without aid of crutch. Took short walk yesterday."

9. *Neurocalograph Reading*: Improved.

Patient Report: "Leg felt fine when I went to bed but soon started hurting; kept awake until 3:30. The more bother in night the better next day. Bowel movement good; appetite good. Catarrhal condition better than in years."

10. *Neurocalograph Reading*: Good pattern.

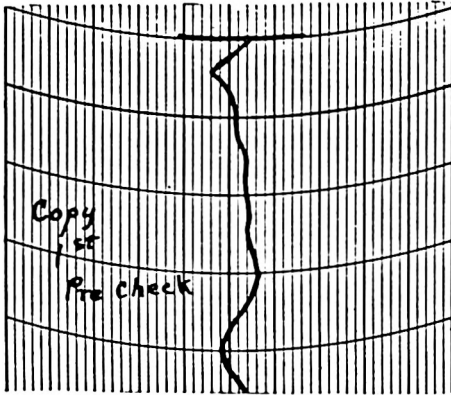
Patient Report: "Good night of rest and sleep, no pains or cramps. Feeling fine except slightly tired. Lower leg still cool and feels a little heavy. Hip much improved."

11. *Neurocalograph Reading*: Pattern very rough in middle cervicals. Please note no return of reading at base of skull.

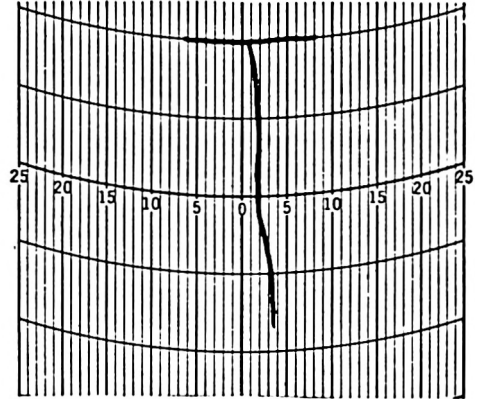
Patient Report: "Leg and knee gaining strength; no tendency to cave in on stairs. Itchy sensation in leg deep as though healing was in progress. Resting better all the time. Vitality picking up. Walked too far on crutches last night which gave little stiffness in leg this morning."

12. *Neurocalograph Reading*: Pattern good.

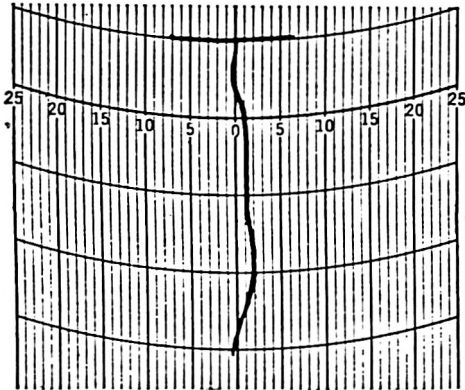
Patient Report: "Fair night's sleep, ache in leg; more constant in hip and ankle. Last night could stand straighter. Today seem more to the side. Everything else apparently the same."



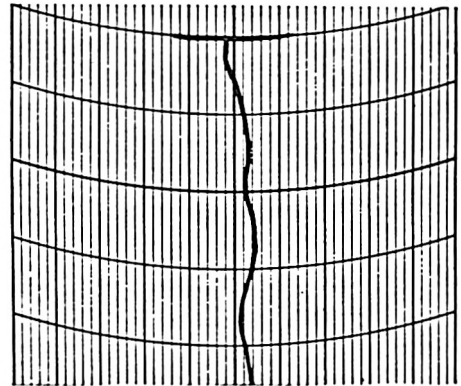
No. 2 6-2-42



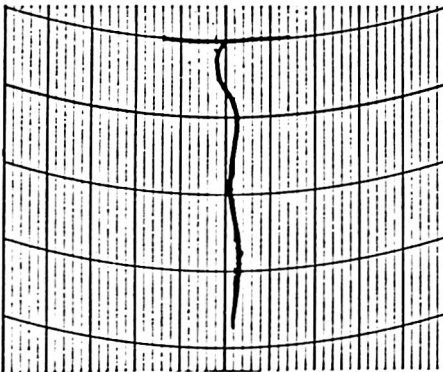
No.13 6-13-42



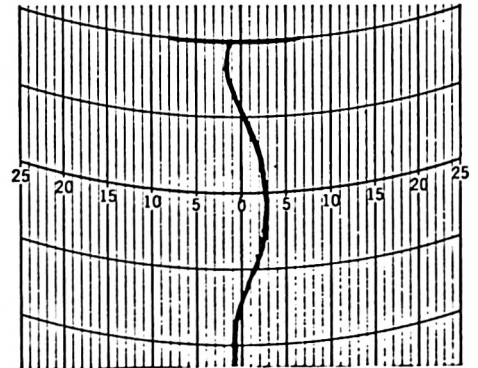
No.14 6-15-42



No.15 6-16-42



No.16 6-17-42



No.17 6-18-42

13. *Neurocalograph Reading*: Exceptionally good pattern.

Patient Report: "About same as yesterday."

14. *Neurocalograph Reading*: Good. You will notice that the pattern is becoming more consistently good throughout entire cervical region now while at first it was considerably rough.

Patient Report: "Two nights of wakefulness due to shooting pains from hip to ankle while lying down. Lying in any position seems to cause pressure on the sore nerve. Still cold sensation in right leg below right knee. Slight drip in throat gone. Lumbar region very weak. Feel as though an adjustment was due."

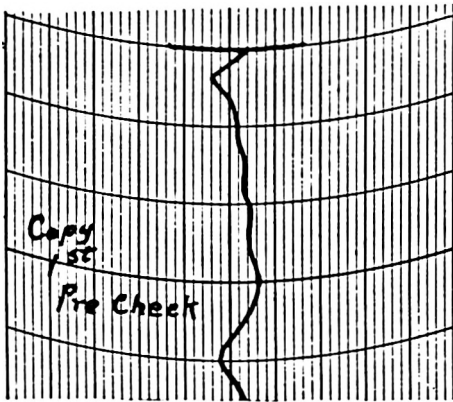
15. *Neurocalograph Reading*: Still good.

16. *Neurocalograph Reading*: Reveals some disturbance in atlas-axis region.

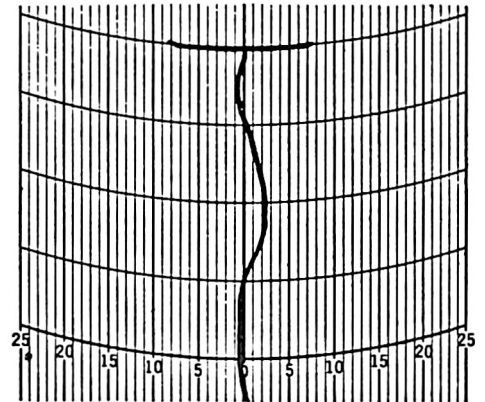
Patient Report: "After a very restless night with drawing pains in legs, hips, and thighs woke with feeling of stiffness in both hips. Feels like a large wound just healing over. Soreness seems to be working back up into lumbar. Feel straighter. Think it is all progress. Feet seem to be getting more life."

17. *Neurocalograph Reading*: Improved.

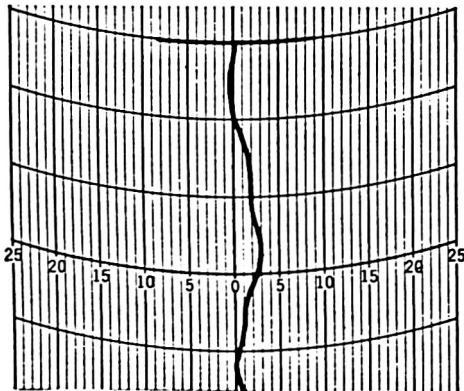
Patient Report: "Had more heating in ankle and foot. Hips still stiff and sore; running up into sacro-iliac area more. Slept better last night."



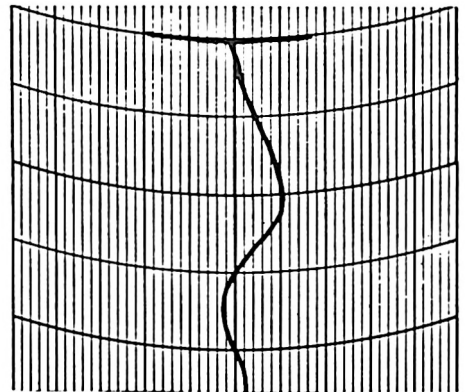
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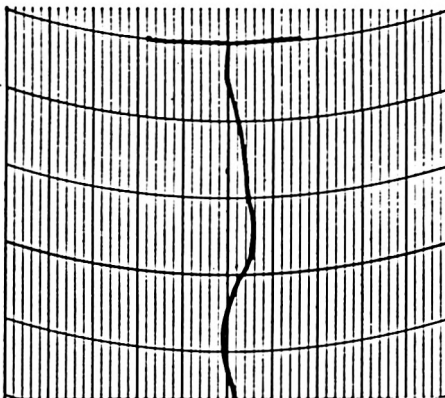
No. 18 6-19-42



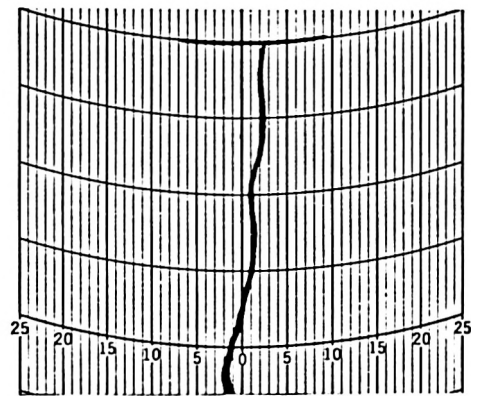
No. 19 6-20-42



No. 20 6-22-42



No. 21 6-23-42



No. 22 6-24-42

18. *Neurocalograph Reading: Good.*

Patient Report: "About same as yesterday. Can turn over on hip in bed with much less pain. Gained 4 pounds weight."

19. *Neurocalograph Reading: Good.*

Patient Report: "Very good night of sleep. Woke without much soreness or stiffness of leg for first time. Bowel action and appetite A-1. Feel 100 per cent outside of curvature and slight discomfort in leg."

20. *Neurocalograph Reading: Reveals large heat line in lower and middle cervical region; atlas and axis region clear.*

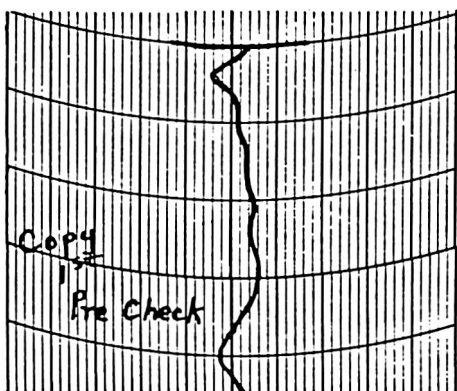
Patient Report: "Still having drawing sensation in leg and hip. Less soreness on palpation."

21. *Neurocalograph Reading: Improved.*

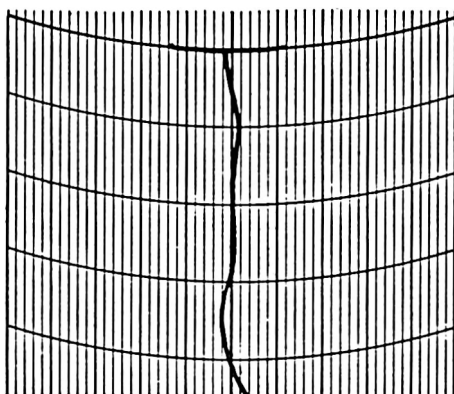
Patient's Report: "Not much change from Saturday, June 20, '42."

22. *Neurocalograph Reading: Good.*

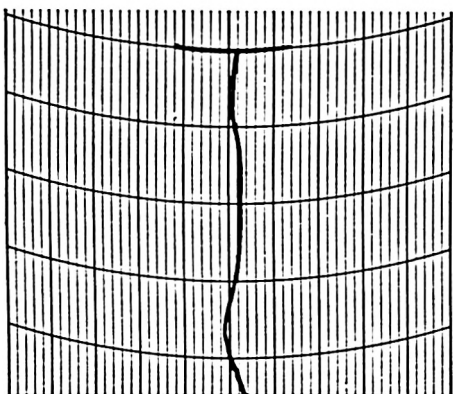
Patient Report: "Went without crutches all day yesterday. Felt strain on neck and soreness in hip and leg as result of lack of support. It seems to have made an improvement as of today. Pelvis will come more nearly straight. Exercised 1 mile on bike last two days."



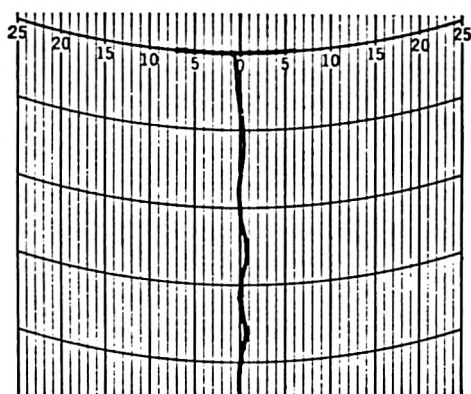
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No. 23 6-25-42

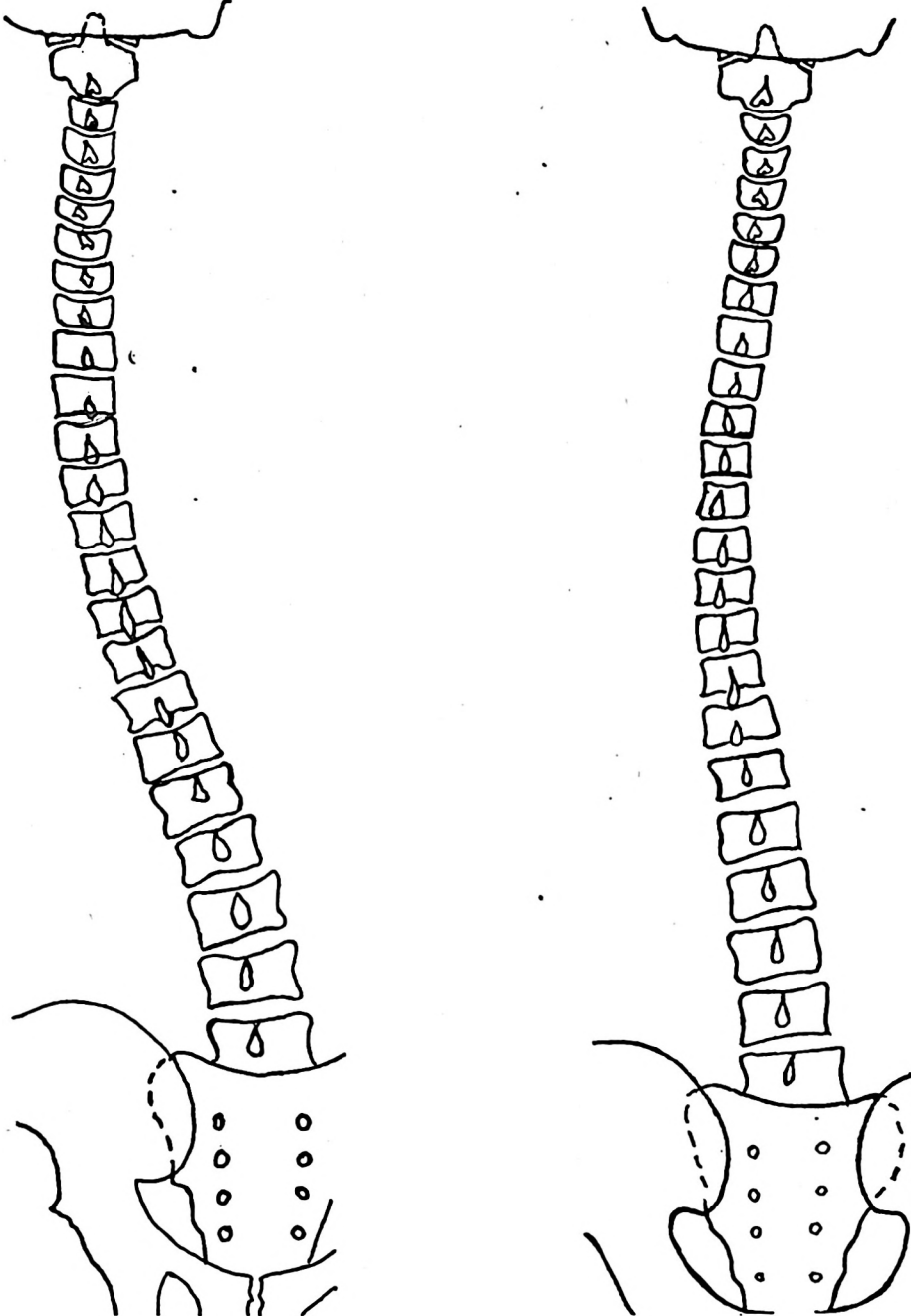


No. 24 6-26-42

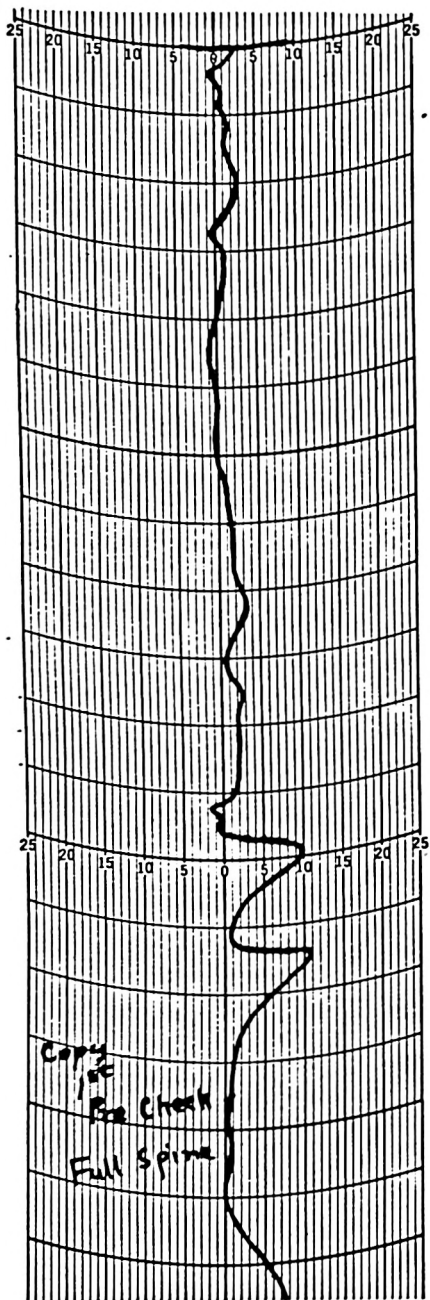


No. 25 6-27-42

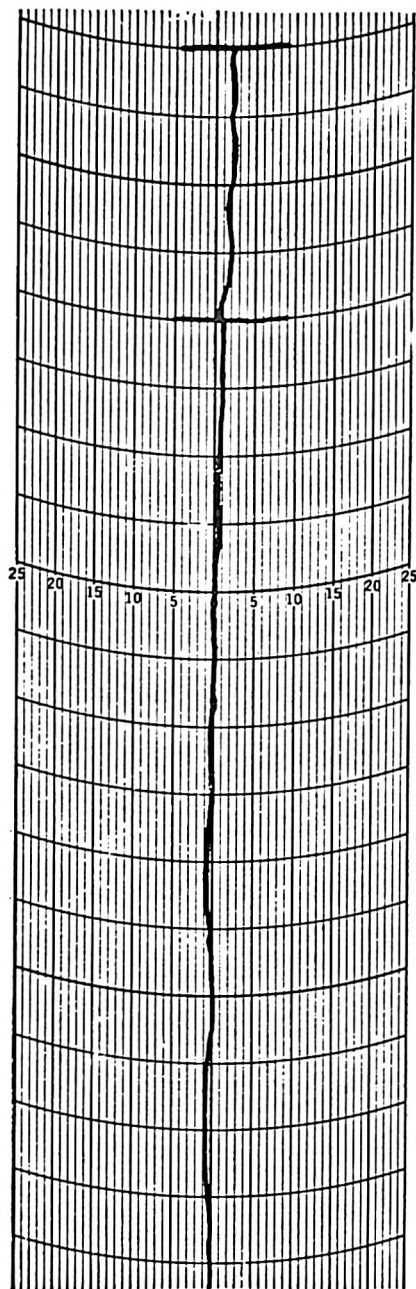
23. *Neurocalograph Reading:* Very good.
Patient Report: "Had splendid night's sleep. Felt like a million. Less soreness in leg; most noticeable in hip socket. Less weakness across lumbar muscles, can stand straight longer. Appetite and elimination normal. Feel equal to running. Leg stronger."
24. *Neurocalograph Reading:* Good.
Patient Report: "Had little sleep last night. Right hip quite sore this morning. Foot and ankle were warm yesterday; cooler today. Six and one-half pounds increase in weight since entering Clinic."
25. *Neurocalograph Reading:* Good.
Patient Report: "Slept better. Pain confined to hip joint. Elimination and appetite good. Heat in foot and ankle today. Feel relaxed and tired."



26a. 6-26-42. — Final full spine X-ray picture, taken a little less than a month apart reveals a very considerable improvement. Position same as for the primary full spine X-ray which was anterior to posterior standing.



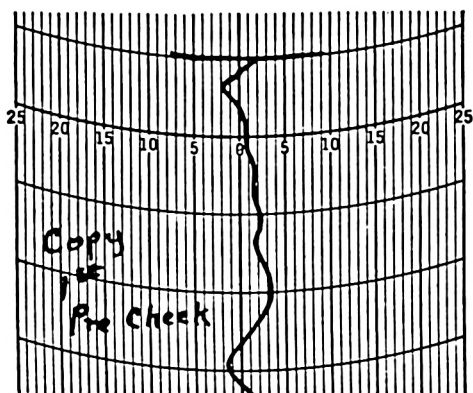
No. 1 6-2-42



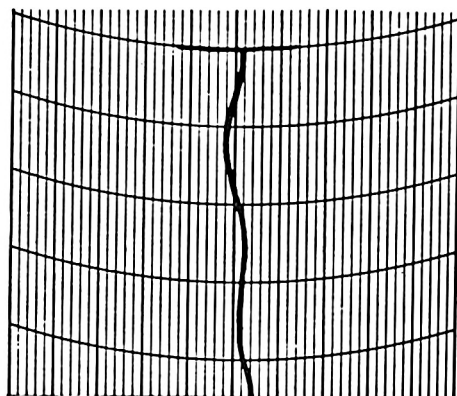
No. 26b 6-29-42

26b. 6-29-42 — *Neurocalograph Reading*: Final reading by Neurocalograph of full spine shows entire spine quite clear of any evidence of nerve pressure. This comparative picture between the full spine Neurocalograph reading when the patient entered the Clinic before being adjusted as compared to the reading of the full spine after approximately one month service is quite typical of other cases when the subluxation has been corrected. The service rendered this case consisted of one adjustment given at axis on 6-2-42. He received no adjustment at any place between these two readings.

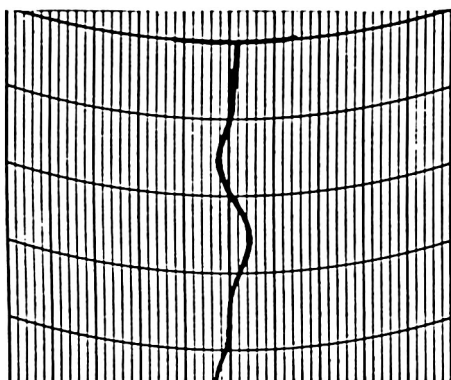
Patient Report: "Ankle has been about normally warm since Saturday. Two fair night's sleep with short period awake. Tire easily when walking with cane."



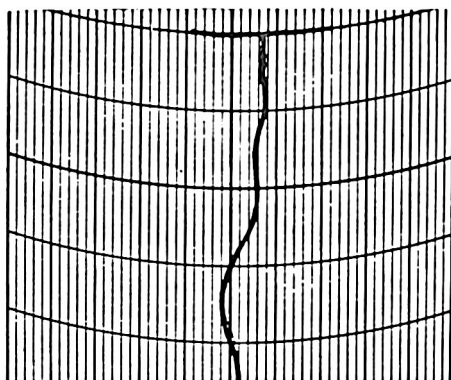
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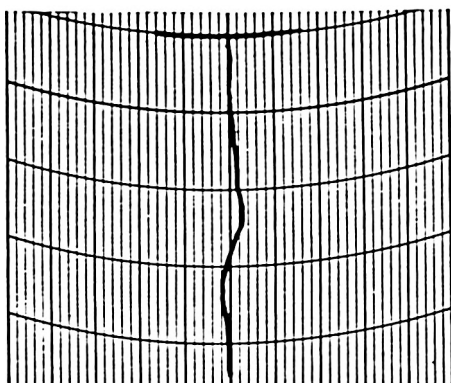
No. 27 8-24-42



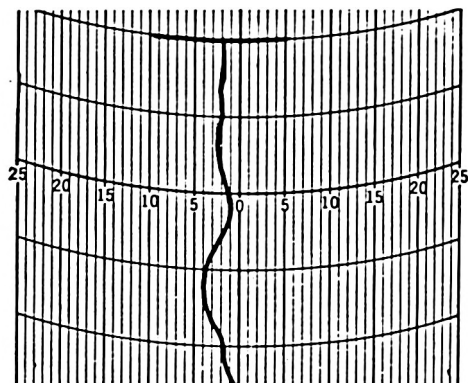
No. 28 8-25-42



No. 29 8-26-42

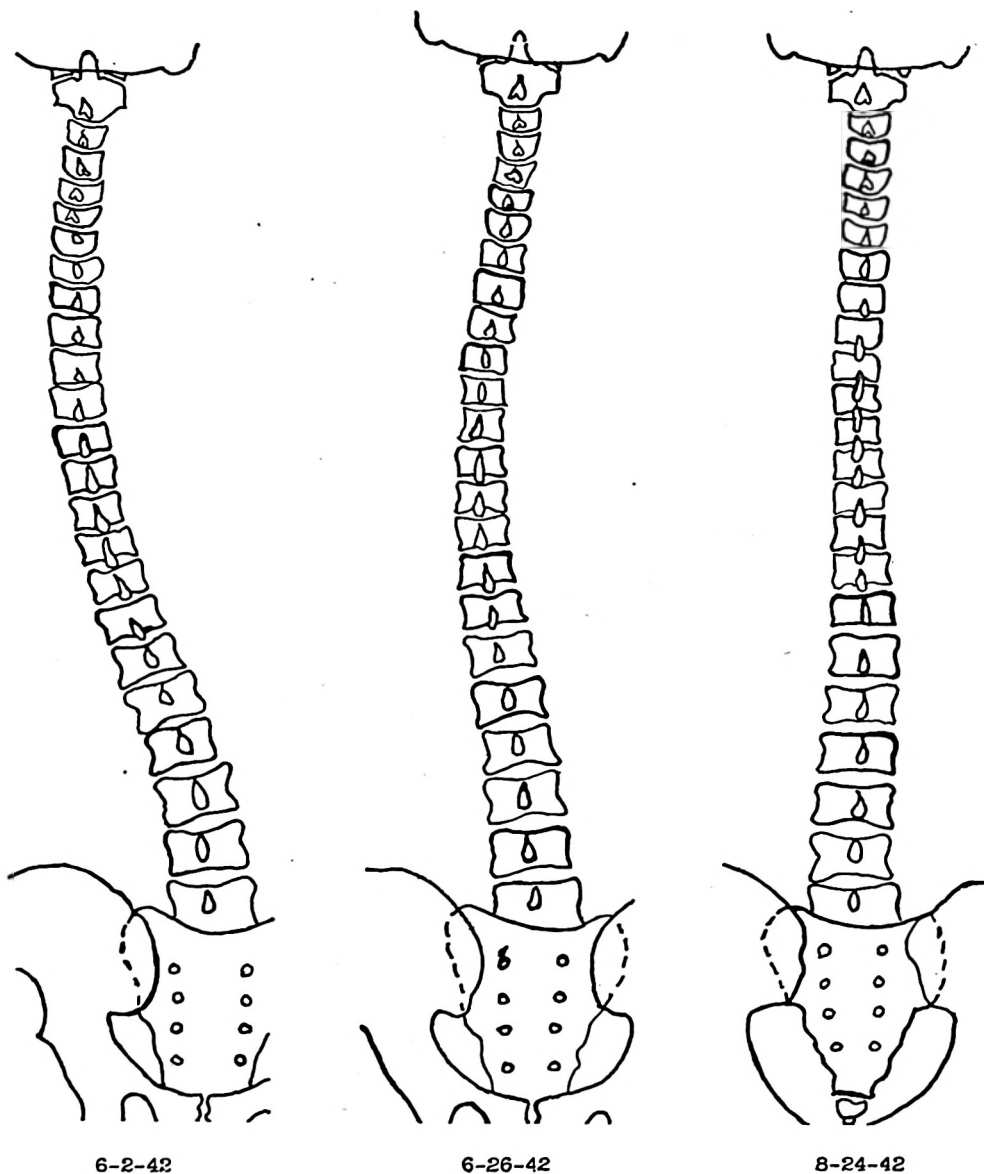


No. 30 8-23-43



No. 31 8-24-43

27. Patient returned for check-up after approximately two months at home.
Neurocalograph Reading: Still quite good.
Patient Report: "Left Clinic June 29. Noticed gradual strengthening of back and legs until about two weeks ago. Pulling on left side of neck not noticed for three weeks. Tire rather easily yet. Last Thursday went swimming; left wet trunks on a little too long. Have since had a slight disturbance in left knee joint and lumbar. Functions good. Still occasional difficulty in getting to sleep nights. Catarrhal condition all gone. In a general way feel better than before illness."
28. *Neurocalograph Reading:* Reveals pattern disturbed in middle cervical region.
Patient Report: "After good night's rest feel much better. Left knee improved. Lumbar region less tired and sore. Head clear. Just feel relaxed. Slightly tired and sleepy."
29. *Neurocalograph Reading:* Clear.
Patient Report: "Felt head and neck congestion last night. Lots of sneezing, chills and fullness of head."
(AFTER LYCEUM TIME PATIENT WENT BACK TO HIS PRACTICE)
Patient returned 8-23-43, approximately one year later to Lyceum and checked into Clinic.
30. *Neurocalograph Reading:* Good. (Please note how consistent the pattern is.)
31. *Neurocalograph Reading:* Pattern little rough; no reading.
Patient Report: "Just to summarize the past year. Month by month can feel improvement. Am working hard and do not get tired easily. Have had three adjustments since last Lyceum from a fellow Chiropractor at home. Sometimes have return of coldness in right ankle; at present it is warm. All in all I don't think there is anything wrong that a few days rest would not fix. My Clinic experience has been of inestimable value in my practice. I was always strongly HIO but know that I overadjusted and probably still do but I am learning. Now have chronic cases get well in two, three, or four adjustments in three to four months checking period. Thank you, B.J.!"



Comparative full spinographs reveal correction of curvature. Patient reports that he has had no adjustment since the one received on June 2, 1942.

CASE NO. 1560

These records are unique for their research value in the cause and correction of an incoordination diagnosed "epilepsy," as revealed by Neurocalograph, nerve pressure pattern behavior during period of reaction and retracing, and clinical picture of severe withdrawal symptoms.

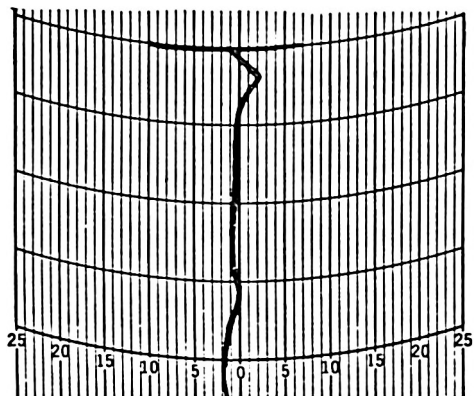
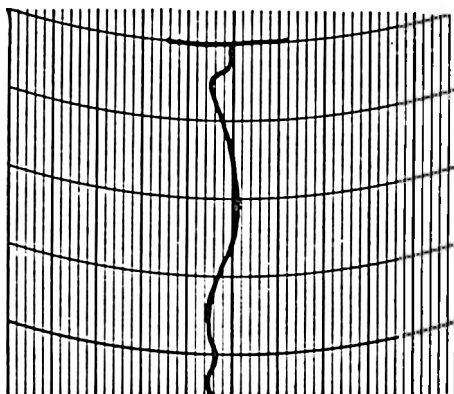
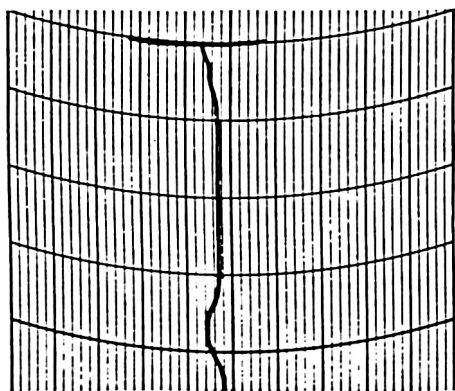
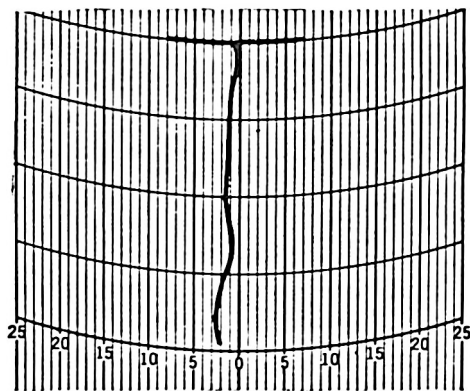
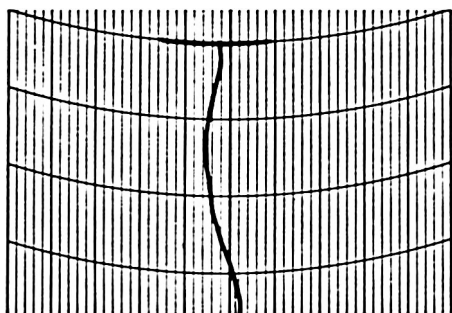
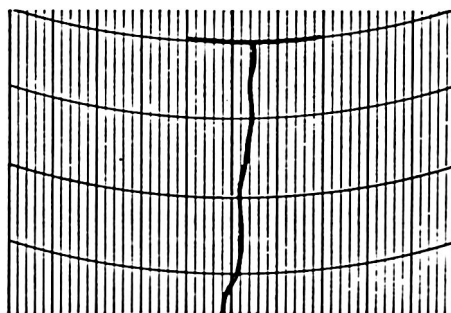
History: Age 24 years. Condition diagnosed as epilepsy: grand mal, since age of 7 years. Most of the convulsions occur at night, averaging 1 to 5 every 24 hours.

Patient's Entrance Remarks: The longest that he has gone without any attacks has been two or three weeks and that was immediately after adjustment from local Chiropractor. Patient has been taking phenobarbital for past 17 years.

Drugs prescribed for epileptics interfere in the making of accurate Chiropractic analyses. These drugs are depressant in nature and either obliterate or camouflage — especially Neurocalograph findings. We so instruct our patients. They either cease taking them or gradually reduce the dosage until they finally eliminate them entirely. We realize that in the majority of cases where drugs have been taken over a period of years there may follow withdrawal symptoms which may be severe in character when the drug is withdrawn. Where a patient has been taking an unusually large amount of these drugs, we hesitate to at once drop the drug entirely. However, the faster they can be discontinued, the quicker correction can be made.

In this case, the amount of drugs ingested daily averaged about $1\frac{1}{2}$ grains of Phenobarbital. This was discontinued a day or two prior to his entering the Clinic. Much of the reaction following reduction of nerve pressure was, in our opinion, withdrawal symptoms as case reports indicate.

There was a question in the father's mind when these reactions became severe whether or not his son could pull through. Those of us who are very closely associated day by day with these cases may also question the advisability of allowing these withdrawal symptoms to continue. In this particular case there was that question in our minds. I took this question directly to Dr. Palmer, i.e., Shall we put this boy back on a reduced amount of

**No. 1 11-30-43****No. 2 11-30-43****No. 3 12-1-43****No. 4 12-2-43****No. 5 12-3-43****No. 6 12-4-43**

Phenobarbital in order to cut down on the severe withdrawal symptoms? His comments were: "Let us analyze this case. He has been under drugs for the past seventeen years. He continued to get worse. Continued normal mental balance was despaired of. The patient was brought here for correction. Drugs are a hindrance. They have no corrective value. Why jeopardize the ultimate progress of this case by returning to the original treatment in any degree?" The wisdom of this line of reasoning certainly has been borne out in this case.

We certainly want to commend the father on his intelligent understanding of what we were doing as well as his cooperation. As a father he could have interpreted the severe reactions and withdrawal symptoms as an indication of his son getting worse.

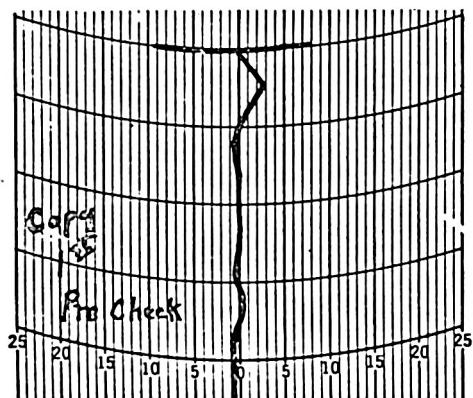
1. Patient admitted to The B. J. Palmer Chiropractic Clinic November 30, 1943.

Spinograph analysis revealed atlas subluxated anterior, superior, right, and rotated with the right transverse anterior.

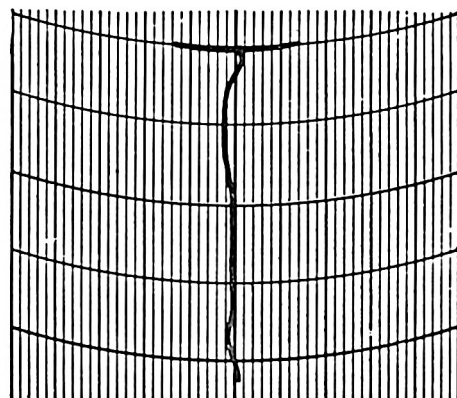
Neurocalograph Reading: On the opposite page are the Neurocalograph findings made of the cervical (neck) region with the top horizontal curved line representing the occiput (base of the skull). This reading presents the nerve pressure pattern before an adjustment was given.

2. Patient was post-checked within a few minutes after adjustment and placed on a cot; moved back to a rest room. Here he was asked to sleep if he could for two or three hours.
3. *Neurocalograph Reading:* Shows slight heat line at atlas.
Case Report: "Head felt clearer, as though a load had been lifted. Noticed increase in hunger after the adjustment."
4. *Neurocalograph Reading:* Very slight return of pattern.
Case Report: Father reports case had an attack about 9:00 o'clock last evening of average severity; another attack in sleep about 4:00 o'clock this morning which lasted several minutes, and "I believe was more violent and convulsive than I have witnessed during the past 17 years." Attack was followed after apparent waking by about 30 minutes of talking about imaginary things in various parts of the room.

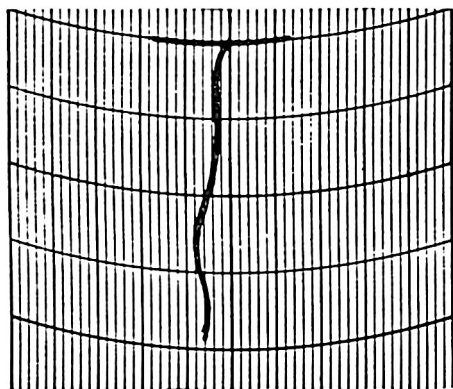
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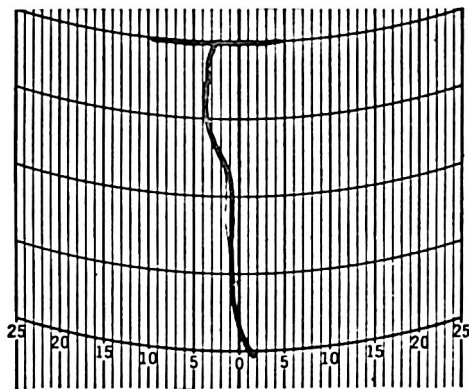
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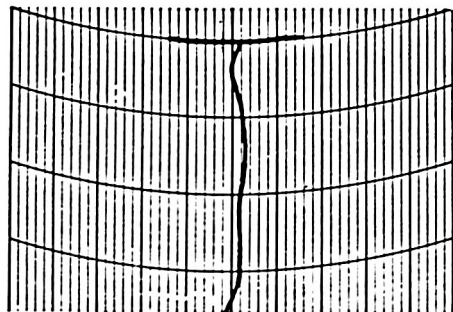
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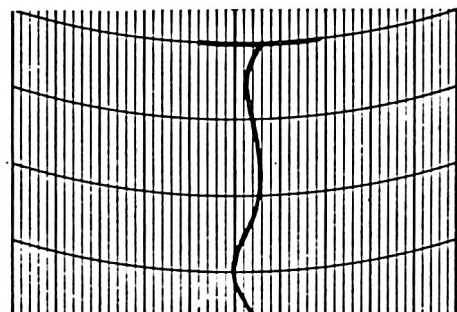
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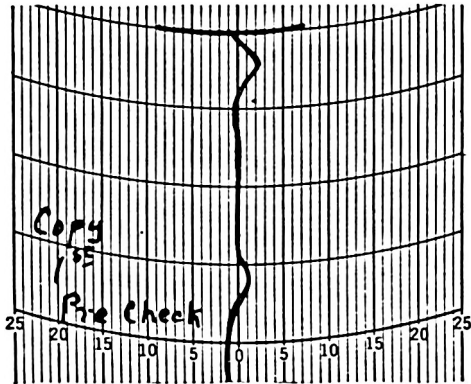
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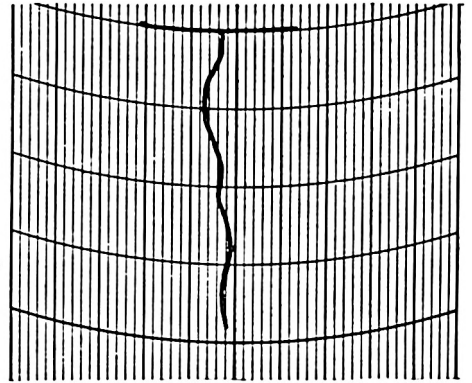
No. 10 12-10-43

5. *Neurocalograph Reading*: Very slight return of pattern.
Case Report: Father reports one seizure at 9:15 of average severity and duration, another attack in sleep at 11:30 lasting several minutes and with most violent convulsion in his history. During the attack his entire body was rigid as a board with very violent jerking, snorting, choking and strangling and he was very difficult to hold in bed. This attack was followed by about 30 minutes of complete loss of memory; incoherent talking, forcing himself out of bed, running around room and bathroom and making a strenuous effort to leave room through window. On waking at 3:00 a. m. he complained of very terrific headache; especially in left side. At 7:45 a. m. another very severe attack very similar to the one at 11:30 except that it was followed by sound sleep instead of talking.
6. *Neurocalograph Reading*: Good.
Case Report: Patient reports had 5 seizures since leaving clinic yesterday of average severity.
- 6a. *Neurocalograph Reading*: Shows very slight return of reading.
Case Report: Has had 11 attacks since leaving clinic Saturday; one of them hardest of all to date.
7. *Neurocalograph Reading*: Good.
Case Report: Has had 5 attacks since yesterday of about average severity. Complains of numbness in both hands.
8. *Neurocalograph Reading*: Good. Slight heat line; no break pattern.
Case Report: Has had 7 attacks since leaving clinic yesterday. The lighter attacks end with exhaustion and no convulsion.
9. *Neurocalograph Reading*: Improved.
Case Report: Had 4 attacks since leaving clinic yesterday which have been lighter than usual. Had a very restful night between the attacks. So far today, it has been hard to keep him awake. Mind blank today. Can read time on the clock, and that is about all he can answer today. Still complains of numbness in both hands.

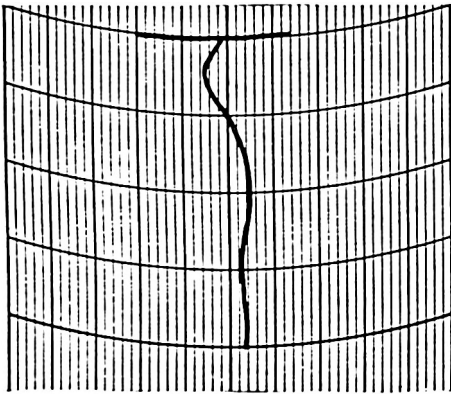
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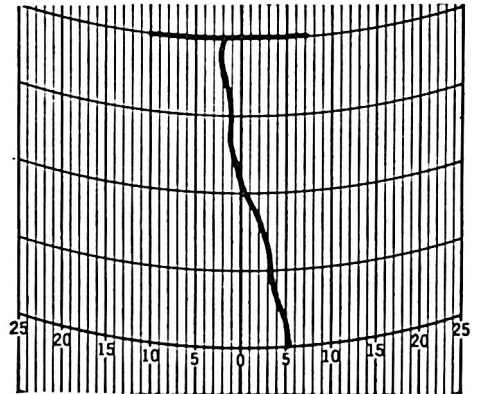
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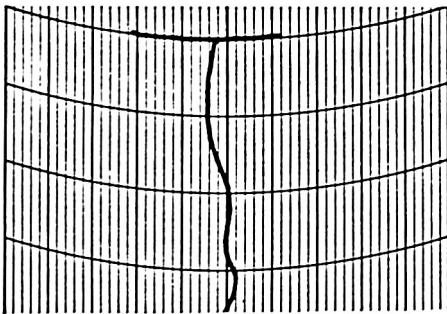
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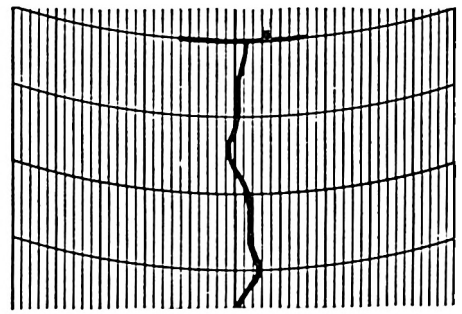
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No. 13 12-14-43

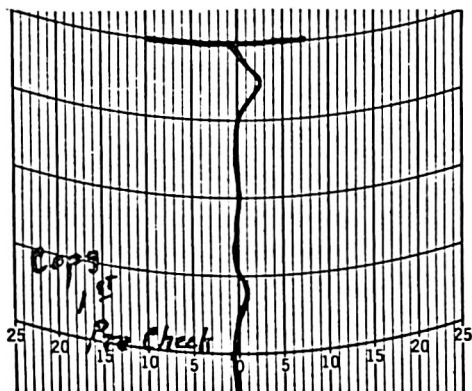


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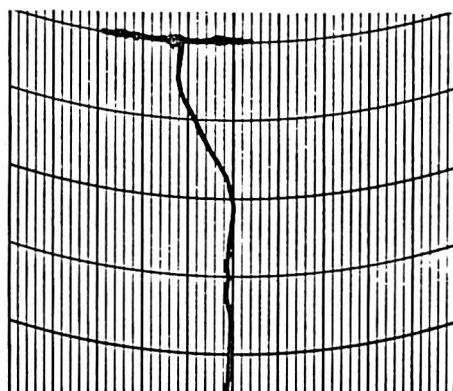


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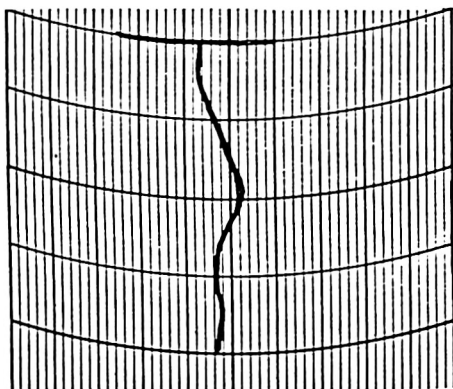
10. *Neurocalograph Reading*: Some evidence of heat; no break pattern.
Case Report: Has had 4 attacks since yesterday. Very nervous and jittery all night. No kidney or bowel action since yesterday.
11. *Neurocalograph Reading*: Rough; no break pattern.
Case Report: No attacks since yesterday. Slept fairly well until 4:00 a. m.; then extremely nervous and jittery and very hard to hold in bed. He has very frequent and sudden jerking of head, arms and legs and is unable to walk straight. His walking, I believe, is similar to that of a blind horse or probably worse. Mind apparently weaker and gradually becomes more helpless. He refuses to eat except when fed like a baby.
12. *Neurocalograph Reading*: Heat line in opposite direction to break pattern.
Case Report: Has had 10 attacks since Saturday, most of them very mild. Saturday was a very hard day for him, the worst since he came. He was extremely nervous and not a quiet or restful moment until after the attack at 1:20 a. m. Sunday. This attack and 3 following apparently quieted the nervousness permitting several hours of sleep, after which the mind was clearer than for several days; also stronger and definite improvement in general.
13. *Neurocalograph Reading*: Improved.
Case Report: Four attacks since yesterday, very light. Otherwise much improved.
14. *Neurocalograph Reading*: Slightly rough.
Case Report: Has had 10 attacks since yesterday, some of which were very severe. Very nervous and hard to control. Almost impossible to hold him in bed. This was the hardest night in two and one-half weeks here.
15. *Neurocalograph Reading*: Increasingly rough; especially lower cervicals.
Case Report: Had 19 attacks since yesterday, all of which were light. Father states his son never had this many attacks in one day. Mind was better through the night than the night before. Kidney and bowels are active.



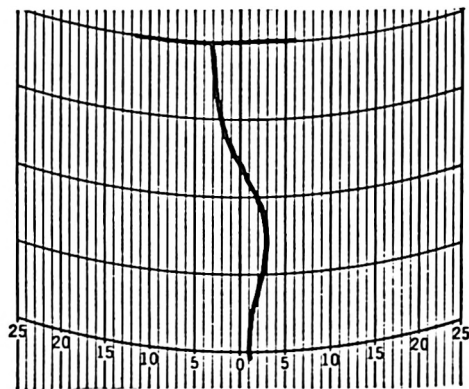
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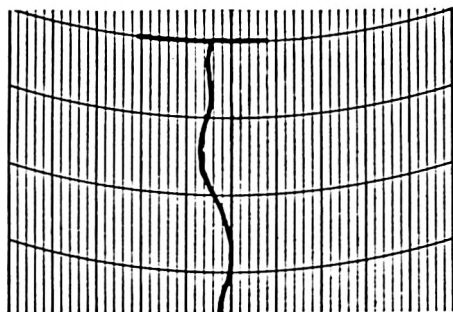
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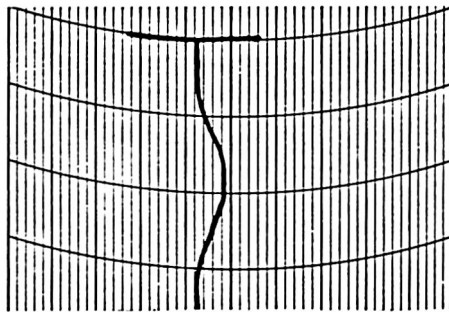
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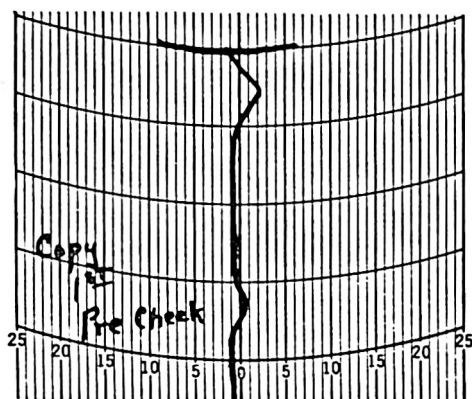


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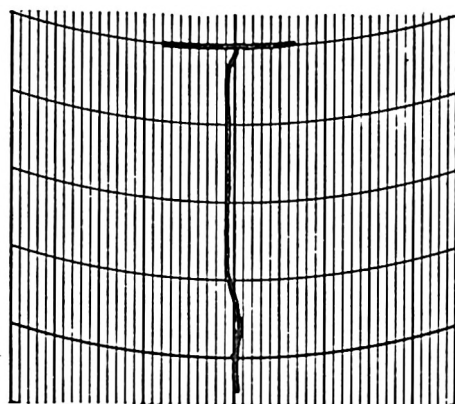


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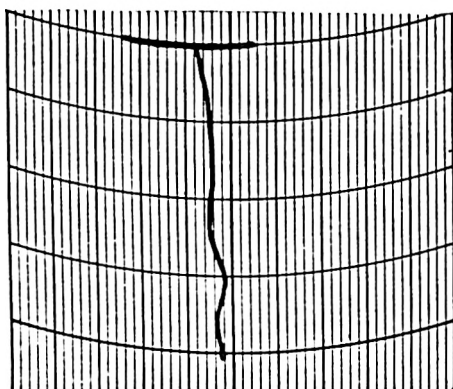
16. *Neurocalograph Reading*: About six point heat line — to left. No break pattern.
Case Report: Had 12 attacks since yesterday, all very light. Mind better than during the past few nights.
17. *Neurocalograph Reading*: Slightly improved.
Case Report: Had 26 attacks since last report. Mind is apparently better this morning.
18. *Neurocalograph Reading*: Shows heat line, no break in pattern.
Case Report: Had 51 attacks since last report. Attacks are gradually harder, rather than milder as had been expected. Mentality seems better most of the time, but very dull at other times. Since adjustment something has seriously affected the throat and ability to swallow food. After chewing several times the normal time requirement, the food is still retained in the mouth until more is packed in to force it down. The attacks have increased to the extent it is almost impossible to have a meal between them, and it is certainly no easy task to be continually pulling the patient from under the restaurant table with jaws locked full of food.
19. *Neurocalograph Reading*: No break in pattern.
Case Report: Had 41 attacks since last report. Father states that for several hours attacks occurred every 25 minutes, to the minute. Most of these were very hard seizures, extremely difficult to hold in bed.
20. *Neurocalograph Reading*: No break in pattern.
Case Report: 54 attacks since last report. These attacks are not only increasing in number, but also in severity each day. Mentality very bad all night and this morning. There is a limit to the endurance of any human being, and I think this case has about reached that limit. If you have never had a parallel case, as I am inclined to believe, then it is perhaps impossible to estimate the duration of this terrible reaction, but surely there must be something that could be done for at least some temporary relief.



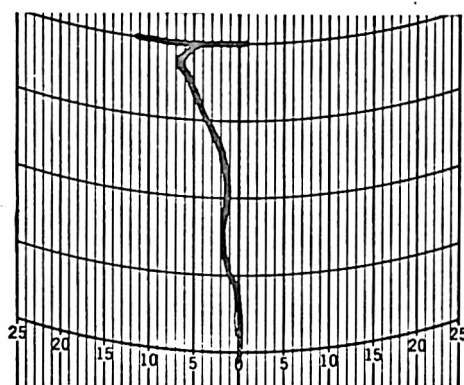
No. 1 11-30-43



No. 21 12-23-43



No. 22 12-24-43



No. 23 6-19-44

21. *Neurocalograph Reading:* Very good.

Case Report: Had 78 attacks since last report. Several of these were mild attacks, but most of them, especially those in sleep, were very severe. Very dull mentally.

22. *Neurocalograph Reading:* Good.

Case Report: 97 attacks since last report. Mental condition worse. Since the boy was having so many convulsions and no means of hospitalization here, and since the Neurocalograph readings remained good, in spite of the many severe convulsions, it was decided the father would take the boy home where he would have better facilities and more help to care for the boy during this period of reaction. The father was very much all in himself having had very little, if any, sleep the past week.

Case Report: 1-8-44 — Father writes that the trip home was very hard, and that he had at least 125 to 150 attacks in 24 hours.

After the 27th there was a very sudden and rapid change for the better from then to date. The week following the 27th, he had a few very mild attacks, but no hard ones. For the last five days they have apparently disappeared entirely. His appetite is ravenous, and he sleeps sound all night. He has gained 8 pounds, and his eyes are clear, as well as his complexion.

On January 4th the patient was taken to the local chiropractor for a check up, but there was no reading.

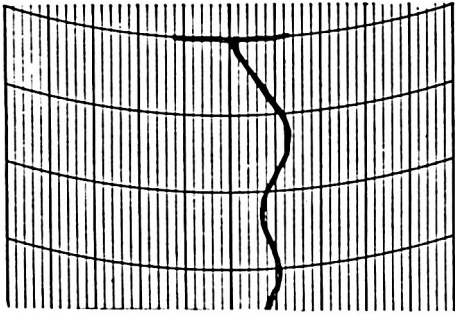
Case Report: 3-4-44 — Father writes: Eight weeks have passed since my last report to you of the progress of my son, and I am pleased to report that he has steadily improved, and now in what I believe you would classify as perfect condition. He has not had a minute of trouble since January 2nd; has been working full time since early in January, getting more regular sleep than ever before. Mind very clear. Still has excellent appetite. He is taken to local chiropractor for Neurocalometer checking at least every two weeks, and each reading shows perfect.

Case Report: 5-9-44 — Letter states that patient is still doing fine, and holding a very responsible position.

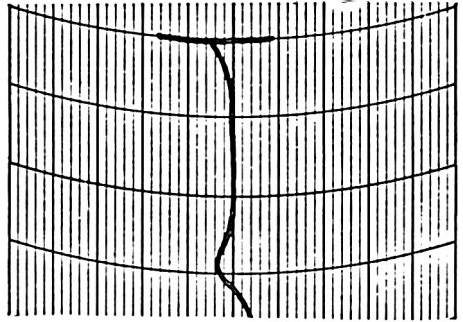
Case Reports: 6-7-44 — Patient writes: "I regret to advise Case No. 1560 is again having some trouble, after the best five months of his life. I think it advisable to see you as soon as possible."

When the patient arrived here, his father reported January 2nd to June 4th feeling fine. No trouble at all. Regular gain in weight from 124 to 166 lbs. On June 4th had some very bad teeth filled, and in about one hour had mild epileptic attack, followed by six others. He had some more during the twelve-hour period. Case was adjusted. The check-out was good. The adjustment was followed by numerous attacks both mild and extremely hard for about 15 days. Since that

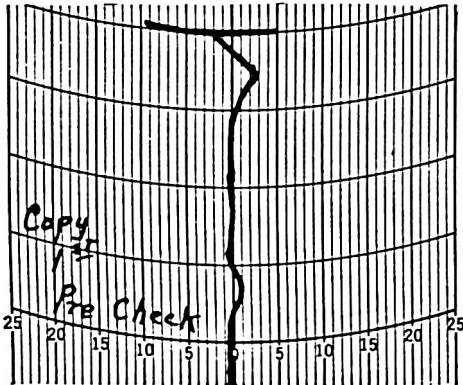
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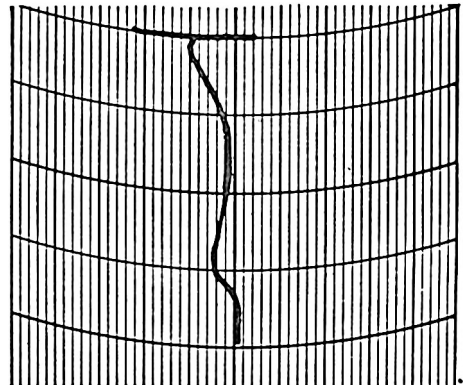
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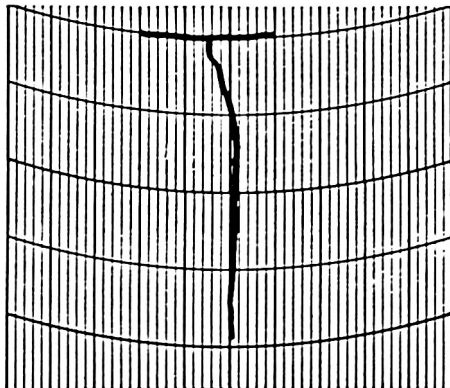
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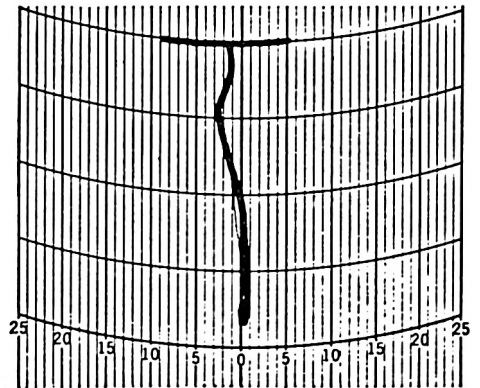
No. 1 11-30-43



No. 26 6-21-44



No. 27 6-22-44



No. 28 6-23-44

time he has been very drawsy and sleeps most of the time. Difficult to swallow food for several days, also badly constipated, but now improved. Had been working two jobs the past three months with too little sleep.

23. Patient spinographed. Spinograph revealed a shift to an atlas ASL.

Neurocalograph Reading: Showing a left point break instead of the original right.

24. Post-check.

25. *Neurocalograph Reading:* Shows improvement.

Case Report: "A tired feeling of lassitude and exhaustion after the adjustment; also slight hunger. Slept three hours immediately after the adjustment and another hour after returning to the hotel. Ate a hearty dinner. Mentality much better than during the last two weeks. Had very restful night with about nine and one-half hours sleep. Feeling very good today."

26. *Neurocalograph Reading:* Improved.

Case Report: "Very restful night with about ten hours of sleep. Feeling better than any time in past several weeks."

27. *Neurocalograph Reading:* Improved.

Case Report: "Very good night with about ten hours of sleep. Feeling better every day."

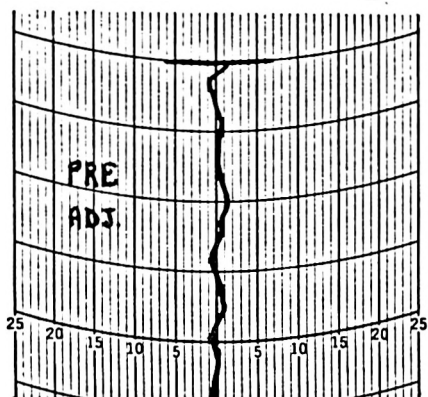
28. *Neurocalograph Reading:* Shows further improvement.

Patient returned home but advised to not work so hard.

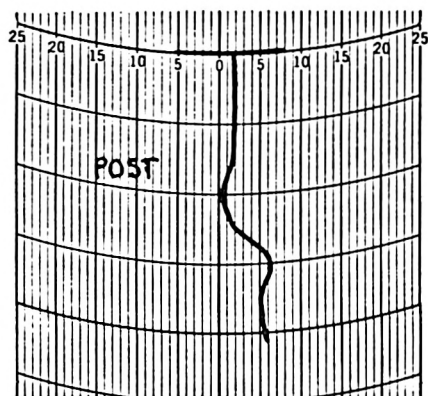
Case Report: 7-27-44 — We had this correspondence from his father: "He is feeling fine. Has had no trouble at all. He returned to his work on July 1st working full time since that date."

About one year later patient had some return of the original trouble; was adjusted. Trouble disappeared within about two weeks. Our last report from the home Chiropractor was that patient's fine, having no more trouble.

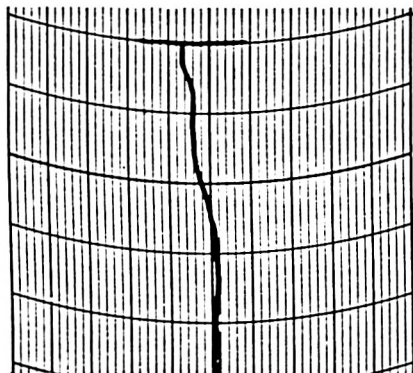
Where an illness of this nature has existed for a period of many years periodic return of some of the symptoms is not unusual even after apparent recovery. However these recurrent cycles in a successful case will become spaced further and further apart until their eventual complete cessation.



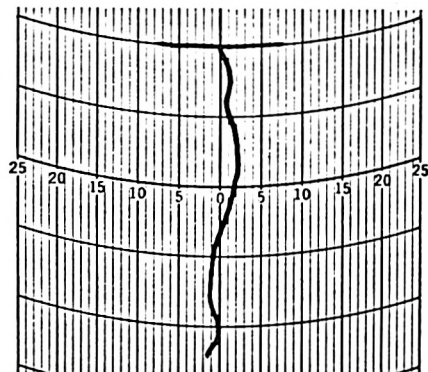
1. 2-19-45



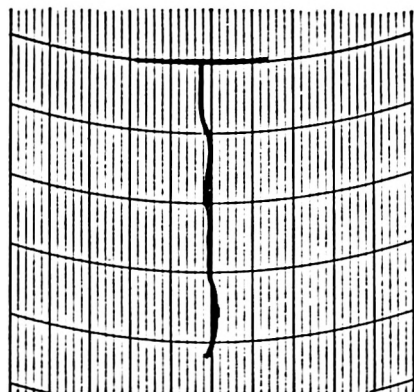
2. 2-19-45



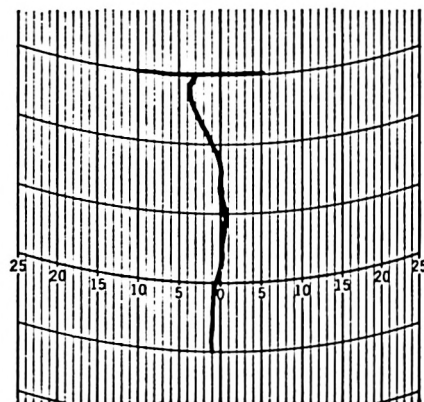
3. 2-20-45



4. 2-21-45



5. 2-22-45



6. 2-23-45

MULTIPLE SCLEROSIS

Dorland's Medical Dictionary defines multiple sclerosis as follows: "a disease marked by sclerosis (hardening) occurring in sporadic patches throughout the brain or spinal cord, or both. Among its symptoms are weakness, incoordination, strong jerking movements of the legs, and especially of the arms, abnormal mental state, scanning speech, etc. It is not curable, and may last for many years."

INTRODUCTORY CASE HISTORY

Case Number 2109.

Male: Age 38.

Case medically diagnosed as Multiple Sclerosis. Symptoms first noticed in September, 1943, while on duty as a missionary in Central Africa. Started with numbness in feet; travelled upward until it reached his neck. Hands shook somewhat but were useful. Could walk when someone balanced him.

In October, 1943, he became helpless, could not feed or take care of himself in any way. After Chiropractic adjustments, he gradually improved enough to feed himself and get around fairly well (December, 1943).

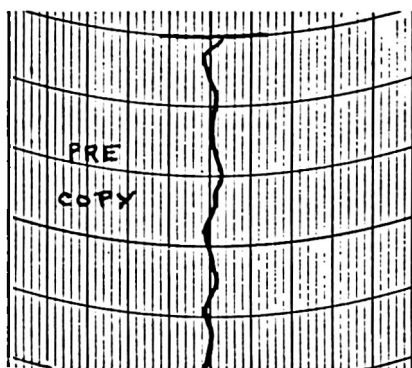
About 22 years ago, patient fell ten feet off building, landing on his head. He was unconscious for thirty minutes, had a very sore neck for several days, but does not remember any other ill effects of this fall. Does not take drugs of any kind. No other member of family similarly afflicted. Elimination, sleep, appetite, digestion good. Strength limited.

Case entered the B. J. Palmer Chiropractic Clinic February 17, 1945.

Graphs on opposite pages represent neurocalograph (recording neurocalometer) findings of cervical spine (neck region). Top horizontal curved line of graph represents terminus — which is occipital bone. Detectors glide up neck starting at about first dorsal vertebra.

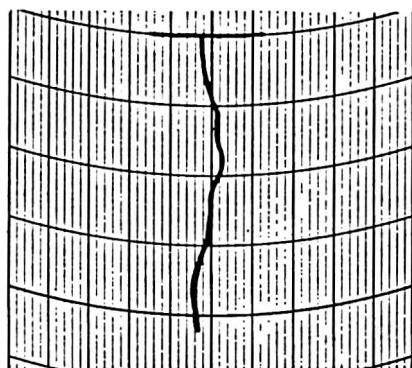
1. *Neurocalograph Reading*: Pre-adjustment — atlas ASR. Pressure pattern existing on day patient entered clinic. Spino-graphs (X-rays of the spine) were made. Atlas, or first cervical vertebra, was found to be misaligned anterior to axis

Continued on next page

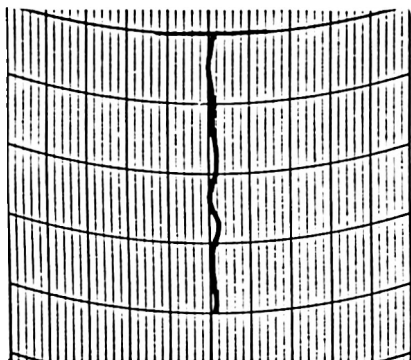


1. 2-19-45

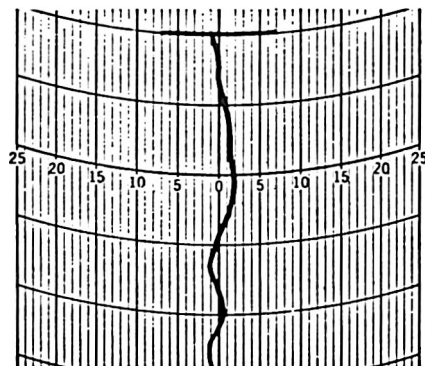
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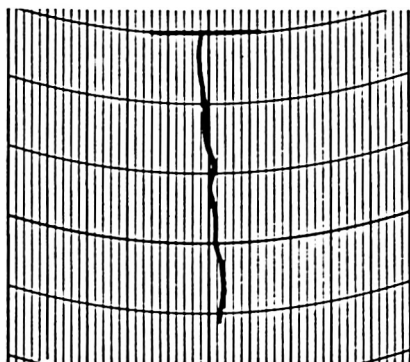
7. 2-24-45



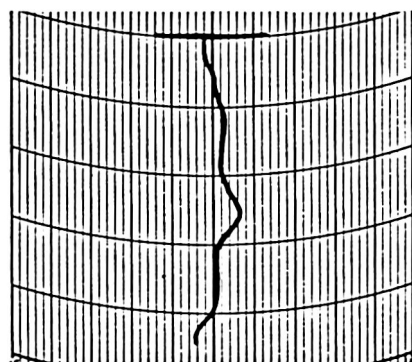
8. 2-26-45



9. 2-27-45



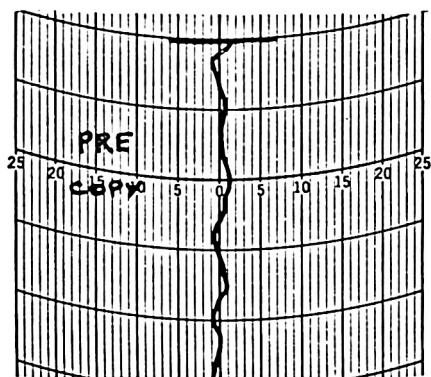
10. 2-28-45



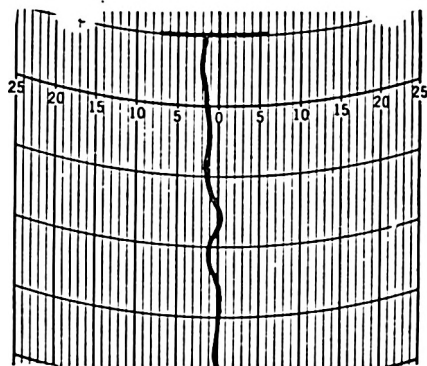
11. 3-1-45

or second cervical vertebra; superior and anterior to axis; and right in its relationship with occiput or skull.

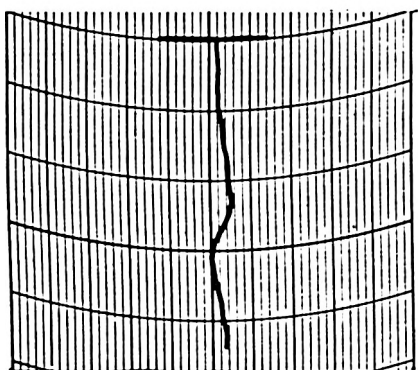
2. *Neurocalograph Reading*: Post-adjustment. Post-check made few minutes after Chiropractic adjustment was made. Pressure readings at superior of these graphs are all important in establishing evidence of removal of interference. Rest of reading is taken into consideration, but does not bear the importance of superior readings.
3. *Neurocalograph Reading*: Much improved.
"Neck feels looser. Pulling back feeling is not so evident. Neck a bit sore."
4. *Neurocalograph Reading*: Slightly rough. No return of original pressure pattern, however.
"Soreness in neck has disappeared. Had a good night."
5. *Neurocalograph Reading*: Pattern improved.
"A little more stiff in knees; otherwise about same."
6. *Neurocalograph Reading*: Slight return of original pressure pattern.
"No change."
1. *Neurocalograph Reading*: Precopy. Original pattern, as made of case on entrance day, appears on each set of graphs for purpose of comparison.
7. *Neurocalograph Reading*: Slightly rough. No return of superior pressure pattern.
"Knees a little more limber than yesterday. Numbness has not increased."
8. *Neurocalograph Reading*: Improved.
"About same except that my neck is a little bit more free."
9. *Neurocalograph Reading*: Good.
"No change."
10. *Neurocalograph Reading*: Good.
"Hands a little less numb. Left knee a little sore."
11. *Neurocalograph Reading*: Slight return of original pressure pattern.
"No change."



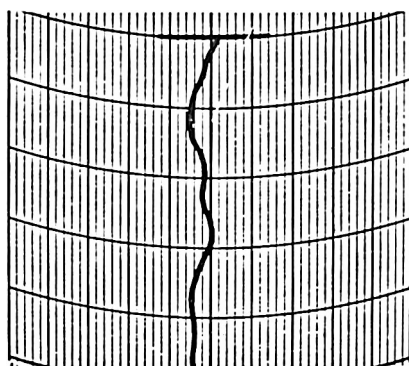
1. 2-19-45



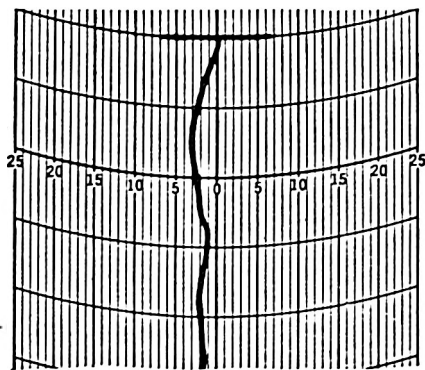
12. 3-2-45



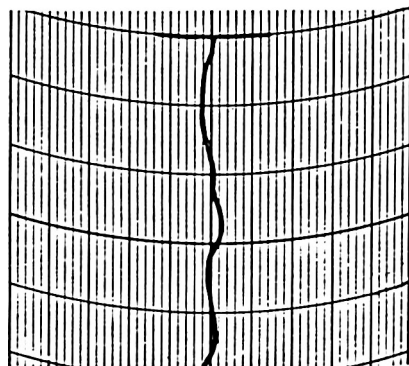
13. 3-3-45



14. 6-9-45

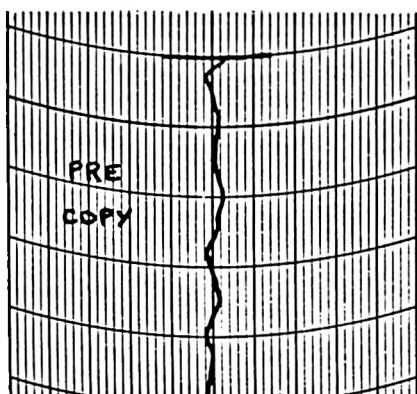


15. 6-11-45

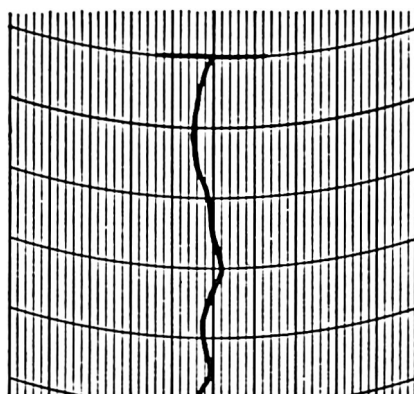


16. 6-12-45

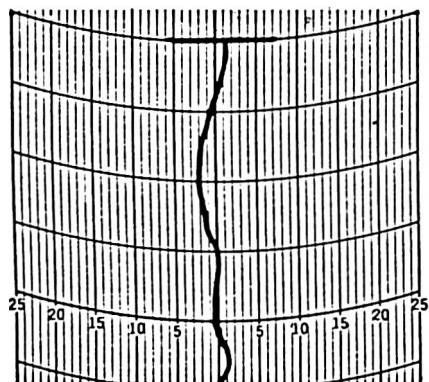
1. *Neurocalograph Reading*: Precopy. Original pattern, as made of case on entrance day, appears on each set of graphs for purpose of comparison.
12. *Neurocalograph Reading*: Good.
"Good night's rest, but did a lot of stretching. I walk a little easier."
13. *Neurocalograph Reading*: Good.
"Good night. Very little stretching."
- Patient left clinic with instructions to take proper care of himself and to report to a local Chiropractor for continued care.
14. *Neurocalograph Reading*: Patient returned to clinic after lapse of four months. Reading slightly rough. Advised to remain at clinic for a few days for observation.
"After leaving here in March, I was much improved, but in April I began to get worse again. Lately have had headaches that seem to start from the neck and go up to the eyes. Also have a pulling back of head at intervals, without regularity. Numbness greater of late."
15. *Neurocalograph Reading*: Some improvement.
"No change."
16. *Neurocalograph Reading*: Same.
"No change."



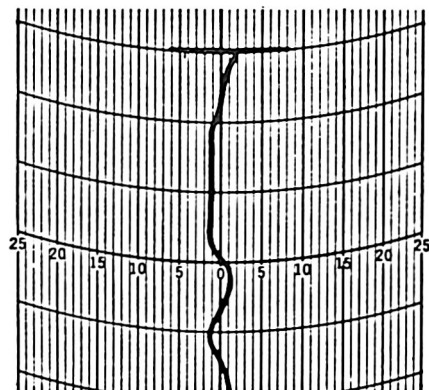
1. 2-19-45



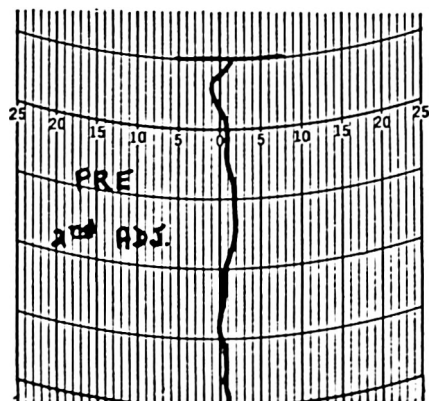
17. 6-13-45



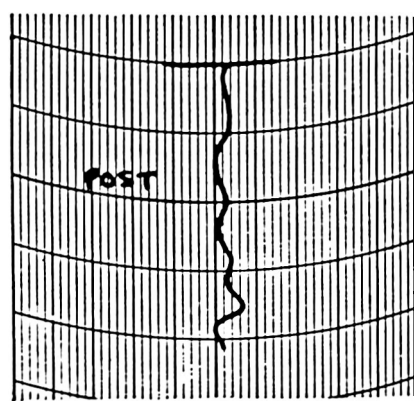
18. 6-14-45



19. 6-15-45

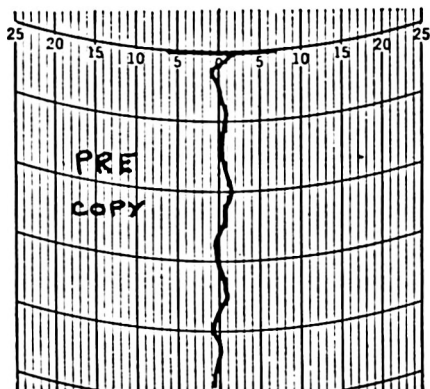


20. 4-18-46

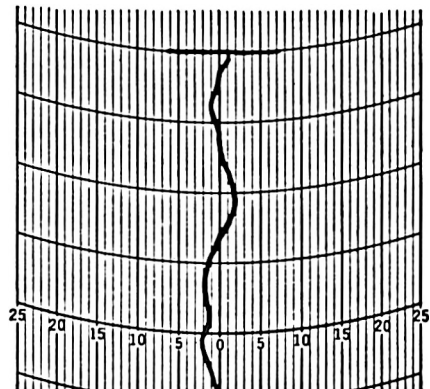


21. 4-18-46

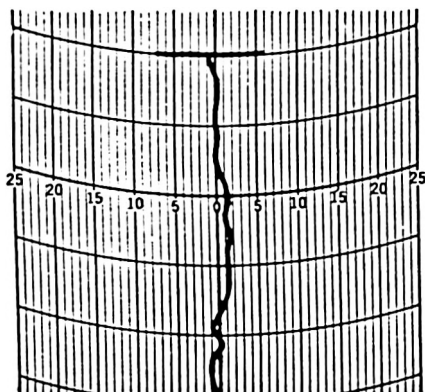
1. *Neurocalograph Reading*: Precopy. Original pattern, as made of case on entrance day, appears on each set of graphs for purpose of comparison.
17. *Neurocalograph Reading*: Some evidence of interference at superior spine, although not sufficiently like original pattern to adjust.
"Not much change. Had a pain between shoulders last evening, but it left during the night."
18. *Neurocalograph Reading*: Some improvement.
"Didn't sleep too well last night. Restless. No pain and no noticeable change."
19. *Neurocalograph Reading*: About same.
"Improving a little; a bit more limber today."
Patient again dismissed from clinic.
20. Approximately ten months have elapsed since patient was at clinic. Neurocalograph reading reveals pressure pattern return similar to original. Adjustment given after comparative spinographs verified original analysis. In The B. J. Palmer Chiropractic Clinic, much stress is put upon comparative records, enabling us to take into consideration changes that take place by previous adjustments, so that we can give more efficient service to patient.
21. *Neurocalograph Reading*: Post-check a few minutes after adjustment.



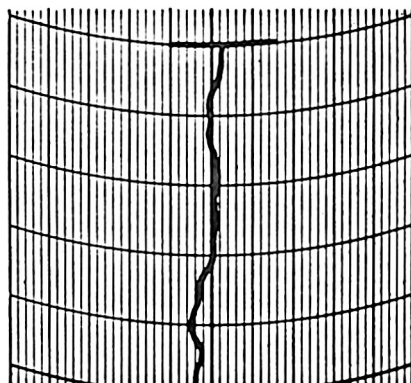
1. 2-19-45



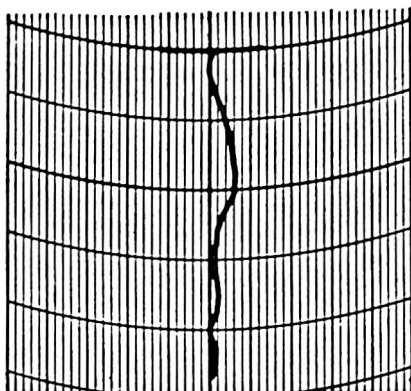
22. 4-19-46



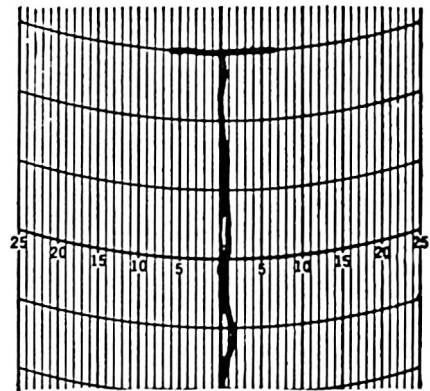
23. 4-20-46



24. 4-22-46

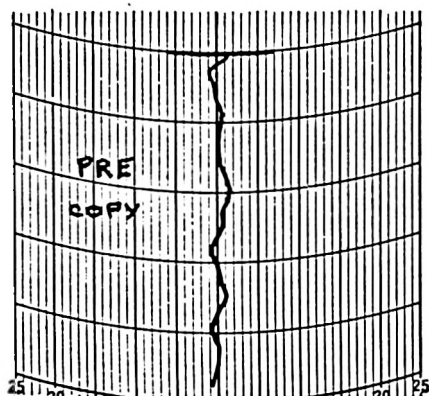


25. 4-23-46

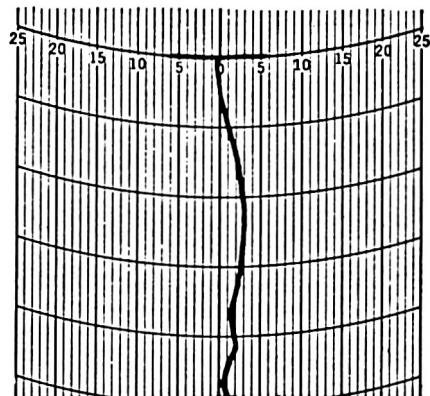


26. 4-24-46

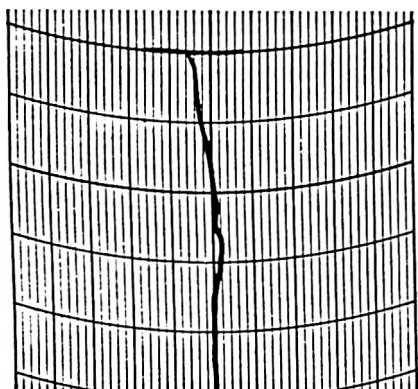
1. *Neurocalograph Reading*: Precopy. Original pattern, as made of case on entrance day, appears on each set of graphs for purpose of comparison.
22. *Neurocalograph Reading*: Still rather rough, but improving. "Neck feels looser today; hands not so stiff."
23. *Neurocalograph Reading*: Improved. "Neck snapped quite often last evening; did a lot of stretching during night."
24. *Neurocalograph Reading*: Same. "Soreness in neck disappeared. Numbness has not changed. Less stiffness."
25. *Neurocalograph Reading*: Slight return of pattern. "No pains, aches, or soreness. Slept and ate well."
26. *Neurocalograph Reading*: Much improved. "Feel good. Still do a lot of stretching. Appetite increasing."



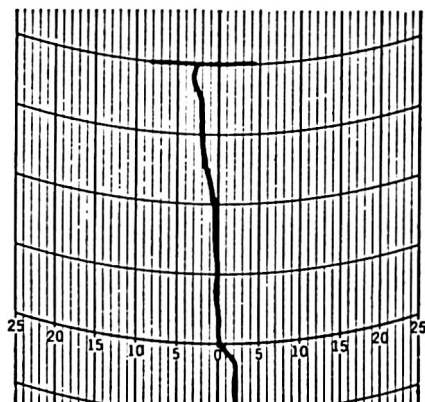
1. 2-19-45



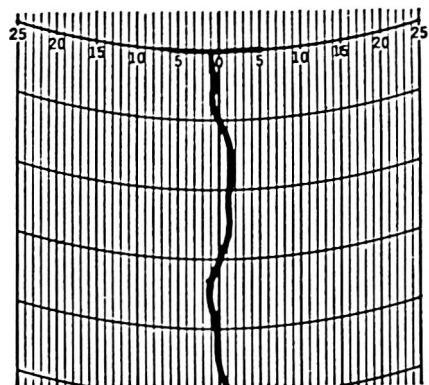
27. 4-25-46



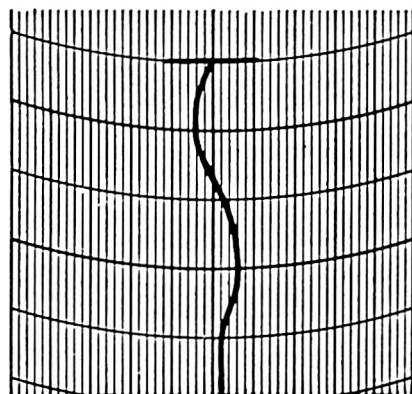
28. 4-26-46



29. 4-27-46

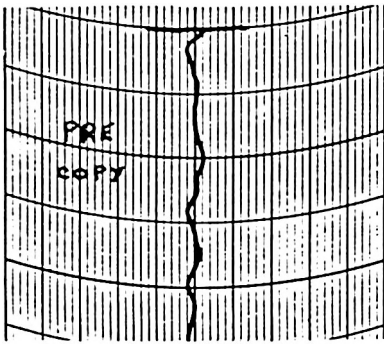


30. 10-22-46

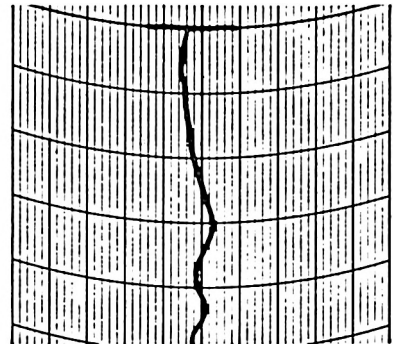


31. 12-4-46

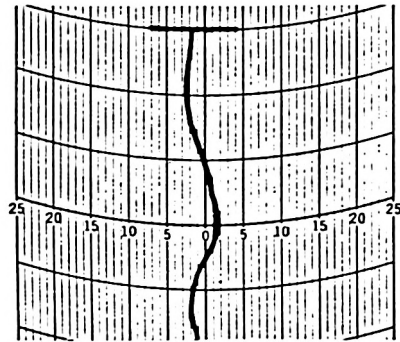
1. *Neurocalograph Reading*: Precopy. Original pattern, as made of case on entrance day, appears on each set of graphs for purpose of comparison.
27. *Neurocalograph Reading*: Good.
"Lots of stretching, especially at night or while lying down."
28. *Neurocalograph Reading*: Good.
"Neck feels better. Feel fine except for the numbness that remains mostly in hands and some in abdomen."
29. *Neurocalograph Reading*: Slight roughness at superior.
Patient dismissed from clinic.
30. Approximately six months have elapsed. Patient returned to clinic. Reading slightly rough, but no adjustment.
31. Six weeks later, patient returned for comparative checking. No adjustment necessary.



1. 2-19-45



32. 12-9-46



33. 12-10-46

1. *Neurocalograph Reading*: Precopy. Original pattern, as made of case on entrance day, appears on each set of graphs for purpose of comparison.
32. *Neurocalograph Reading*: Still good.
33. *Neurocalograph Reading*: Reading good.

"Last two weeks, a little sluggish, but feel better today."

Last report from patient says he is working and in good health.

On December 10, 1946, patient accepted invitation to speak to student body of The Palmer School of Chiropractic, and the following is a copy of his talk:

I am indeed happy to be a living witness of what Chiropractic can do in getting sick folks well.

In 1930, I went to Africa as a missionary. I was in the very heart of Africa; one thousand miles inland. I spent three terms, or ten years there. During the last term, September, 1943, I became ill. I called the French medical doctors to examine me, and they were unable to say what I had. They shipped me to an Army hospital at Fort L., where they said I would have the best medical doctor that the Free French forces had. I spent three weeks there, during which time they took a spinal puncture and went through many examinations. The doctor said he was unable to say what I had, and wished that I would leave.

Then, through British Army forces, I was transported to Nigeria, and was in the hands of a British missionary doctor and an American Army Air Force doctor, and was visited by a British Army doctor. These doctors were very kind and very good, and did their very best to help me. I spent three weeks in that hospital, and went through all their examinations to try to diagnose my case. I was unable to feed myself, unable to use my hands, and could not walk alone.

The British missionary doctor, very anxious to explain what she thought I had, brought in a frog and dissected it before me. She did something to the brain of the frog to take away feeling while she cut into him. She put the stomach aside, and with a tweezer she held certain nerves of that frog. When she pinched the nerve that led to one of the legs of the frog, it would shake. She said, "We do not know where that pinch is in your body, nor do we know what to do about it." She went on to say that if there were something in my blood that was causing the trouble, they could have given me a hypo or injection to relieve it. I, being a little bit familiar with Chiropractic, knew that if I could only get home to America I would have help; but they did not know anything about Chiropractic.

I spent three weeks there, and they were unable to diagnose my case and shipped me off by plane to an Army Air Force Hospital at Acora on the Gold Coast. There were many American Army doctors there. One of them said, "We will tell you

what you have before you leave here." I spent seventeen days there, and doctor after doctor came in and examined me. They took another spinal puncture. After seventeen days, a delegation of doctors came to my bedside and told me I had multiple sclerosis, and explained that it was incurable. They said the best they could do was to tell me to get home to America as fast as I could, and prepare to die. I told them I was prepared to die; I had given my heart to the Lord Jesus, and I did not worry about death; but I had a family, and I felt I had a work to do on this earth.

Two days later, they put me on a plane that flew me to Natal, on to Miami, Florida, arriving there on November 30, 1943, and from there to Chicago. I was in hopes all the time that I could soon get to a Chiropractor. I was unable to walk alone, feed myself, or even to take off my glasses. Could not lift my hand to the top of my head. Some of my friends in Chicago were anxious about my condition, and wanted me to get the very best care possible. One registered nurse made arrangements with a specialist in Chicago to see me. I was told I had multiple sclerosis, and they could experiment with me for a while; but I excused myself, stating that I wanted to go to see my folks before I died. I got out of their hands and slipped over to the Chiropractic school in Chicago (the only Chiropractic school I knew of at that time). They did not give me much hope, but said if I wanted a few adjustments they would give them to me. They gave me five adjustments in five days, and my hands began to become quiet, and gave me much encouragement.

I had not seen my folks for some time, so I left there and went to North Dakota. From there on, I saw several local Chiropractors and they all seemed to help me a little bit.

The first part of January, 1944, I was at a church conference in Fergus Falls, Minnesota. Our people—not too Chiropractic minded—were determined that I visit the Mayo Clinic at Rochester. Wanting to please my people, I went to the Mayo Clinic, where they also diagnosed my case as multiple sclerosis. They said they had known of this disease since 1850, but to this day they did not know any cause or any cure for it. They said my case had revealed two things to them: (1) that multiple sclerosis was believed never to be found in the tropics. (I had been in the tropics since 1930 and now, in 1943, I became ill with

multiple sclerosis); (2) that they had been using quinine as a tentative treatment for multiple sclerosis. (I had been taking quinine since 1930, and after thirteen years of taking quinine, had become ill with multiple sclerosis.)

They had a new treatment at the Mayo Clinic that some of the doctors wanted to experiment with. They called it the Histamine injection. They told me I should come to the hospital every morning, six days a week, and be prepared to be laid out for two hours from this injection. I was not very anxious to be more laid out than I was. After two days deliberation, I decided I would not take it, so went back to the head doctor and told him that I had decided not to take this treatment as it was still an experiment. He said, "I don't blame you. I wouldn't, either."

On my way back to Fairbault, Minnesota, I met a lady who had multiple sclerosis and she had been at the Mayo Clinic under these treatments about fourteen or fifteen months previous. In two weeks time she thought she was dying from the injections, and the clinic told her to go home because she was dying.

Upon leaving the Mayo Clinic at Rochester, I went back to our missionary rest home at Fairbault, Minnesota. I went to the local Chiropractor there, and had many adjustments. My folks wanted to see me, and were anxious that I visit them. They told me I could visit Chiropractors in their locality. I went from place to place, and at last went to Canada to visit folks there.

I called on a Chiropractor in Saskatchewan, and he told me I had "atlas trouble." He explained that he believed I had a fall, many years ago, which knocked my head back, and that my skull and atlas had grown together, out of place, and were immovable. He said he did not know if it would be possible to correct it. Then he asked me if it was true that I had had a fall. I recalled that, back in 1925, I was working in a sugar beet factory, hauling concrete in wheelbarrows, on a scaffold ten feet high. I fell with a wheelbarrow, and the handle went through my glasses, knocking my head back. I had a sore neck for several days, but never thought much about it. I did not realize what I might have done to my neck. This doctor suggested that I go to Davenport, Iowa, where there was a Clinic and School that specialized in the neck. He stated that he did not believe in their system, but recommended that I go there to see if they could help me. He said I

could take all the adjustments possible, and I would never get well without my neck condition being corrected.

It was several months later (February, 1945) that I did come to Davenport, and received my first adjustment. Immediately after that adjustment, I began a new improvement. As I have told you before, under other Chiropractic adjustments I was a bit better, but it was not until after my adjustment in the Clinic here that I actually began to repair.

I felt so well after one month that my brother-in-law, a pastor in North Dakota, wrote that if I was able to come for some meetings, he would arrange them for me. I went to North Dakota and had several engagements. On the way back to Minnesota, I went to sleep on the train and woke up with a headache. I began to get stiff again, numbness began coming back, so I wrote a letter to the Clinic. On June 1, 1945, I came back. On the way back to Davenport, I was driving my car and had a flat tire. Being alone, I had to change the tire myself. After I began driving again, I realized that my headache was gone, numbness was gone, my hands were quiet, and I felt different. I came to the Clinic the next day, and found that I had no reading, and did not need an adjustment. In a conference with the doctor, he stated that possibly the tire changing had given me the adjustment. I stayed one week, and went back home, constantly improving.

Then last April, I came to Davenport again, bringing two of my children and my father to the Clinic for a check-up. They found my neck was just a little out, and gave me an adjustment (the second adjustment I had in Clinic).

Last July, I accepted a call to serve a church in Ottawa, Illinois, and since then I have been working full time. I am happy to say that through Chiropractic, I have been made almost well. Today, I have just a little numbness left in my hands. I have the full use of my hands, my feet, and my whole body. So, I just want to say a word for Chiropractic to the students at the Palmer School. You are on the right track, and you have come to the right place. You have a good profession before you, and I have every reason to believe that Chiropractic is a science from God, given to make sick folks well; and I have said many times that an honest Chiropractor is a most wonderful thing in this world. I say, God bless every one of you and be sincere in your work. You have a good profession.

CASE NO. 2120

The B. J. Palmer Chiropractic Clinic presents this case to demonstrate value of Chiropractic in a case medically diagnosed as brain fever or encephalitis (sleeping sickness).

We cannot over emphasize importance of removing cause before permanent damage is done. When sickness appears, take child to a competent chiropractor at once. Removing cause in early stages gives patient a much better chance for complete recovery. If permanent damage is allowed to develop, complete return to health is not always possible, even with removal of cause. Recovery under Chiropractic is always consistent with limitation that is caused by permanent damage. See your chiropractor first, not last.

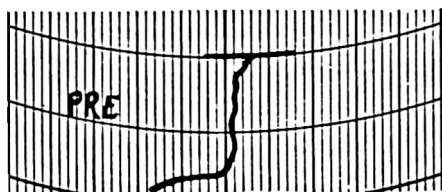
SLEEPING SICKNESS

Dorland's Dictionary gives the following definition of sleeping sickness or lethargic encephalitis: "a disease of obscure pathology, but due to a virus, the distinctive features of which are increasing languor, apathy, and drowsiness, passing into lethargy (drowsiness of mental origin). There is a progressive muscular weakness and various cranial nerve palsies."

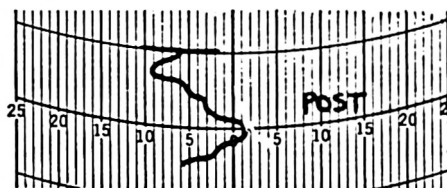
CASE HISTORY WRITTEN BY MOTHER JULY 7, 1947

"In November, 1944, ——— had infection in her nose, caused from a dead hair. The doctor gave her considerable sulfa tablets to clear this up. In December, she had the mumps. In February, 1945, we noticed that ——— was very irritable and she was not eating as well as usual. We took her to a doctor and he said she had stomach trouble and gave her some medicine. After a week during which she had not improved, we took her to another doctor, a child specialist. He gave her a thorough examination, and took a spinal test, after which he told us she had a case of sleeping sickness and there was no cure whatever for it.

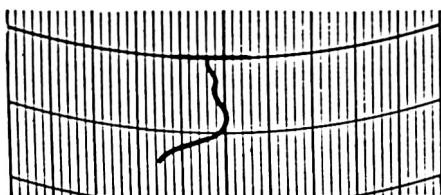
"We were to take her home where she would eventually go into a coma. By this time, she was having difficulty using her hands and was sleeping most of the time, refusing to eat or drink. The next day, we took her to Dr. ———, a local chiropractor, and he advised us to take her to Davenport at once where she would receive the best of care. By the time we reached the B. J. Palmer Chiropractic Clinic, ——— was stone blind and could not stand or walk alone. She had also lost all power of speech.



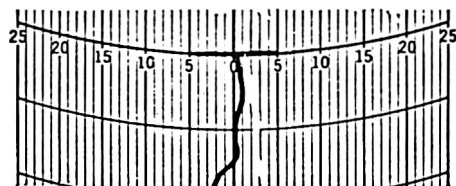
1. 3-3-45



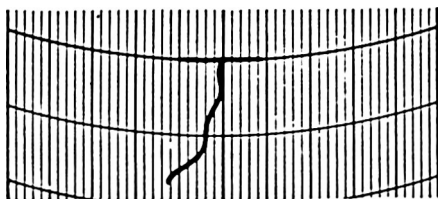
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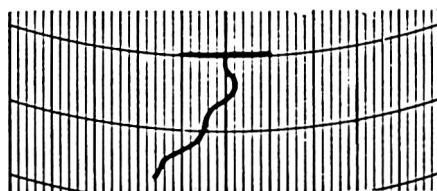
3. 3-5-45



4. 3-6-45



5. 3-7-45



6. 3-8-45

"One hour after she received her first adjustment, she could talk. Her appetite returned, and three weeks later she could see fairly well. Today ——— is a healthy, normal child and has perfect vision."

Graphs on opposite pages represent neurocalograph (recording neurocalometer) findings of cervical spine (neck region). Top horizontal curved line of graph represents terminus — which is occipital bone. Detectors glide up neck starting at about first dorsal vertebra.

1. Spinographs were made. They revealed atlas misaligned and listed as ASR. Neurocalograph reading revealed pattern of pressure, particularly at first cervical or atlas vertebra. With this evidence of interference, child was adjusted atlas ASR. (Sometimes it becomes difficult to make consistent neurocalograph readings of children, because of their tendency to move during the readings.)

2. Post-check made within two hours after the adjustment. Pattern appears exaggerated. Mother states that within one hour after adjustment was given, child could talk.

3. Reading improved.

"Restless all day until about 11 p. m. Slept good until 2:30 a. m. and then until morning. Ate a little supper and a little breakfast."

4. Reading good.

"From 4 to 6 p. m. talked all the time and played with doll. From 6 to 11 p. m. tried to sleep but would wake up every 10 or 15 minutes and cry 'Mama, Mama' over and over, and I don't know what the trouble was. Slept sound from 11 p. m. to 4 a. m. and then until 8 a. m. Drank a little milk, then went back to sleep. Ate a good dinner. Talked."

5. Good reading.

"Playful and talkative in afternoon. Always complains of eyes having dirt in them. In evening said her toes hurt. Ate a good breakfast. Didn't cry when hair was washed and combed, as she usually does. Talked and played all morning."

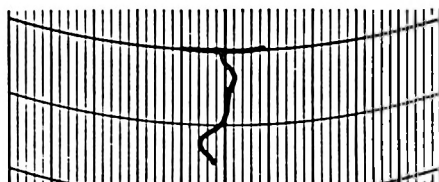
6. Slightly rough reading.

"Took an hour nap after we got home. Had a hard time keeping her in bed. She insisted on getting dressed, so finally

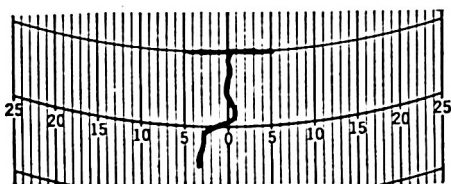
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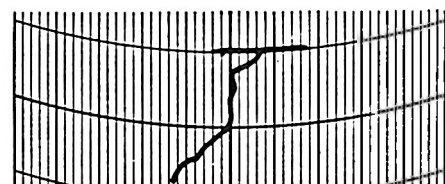
1. 3-3-45



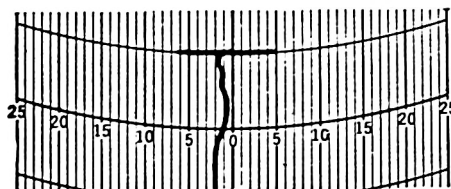
7. 3-9-45



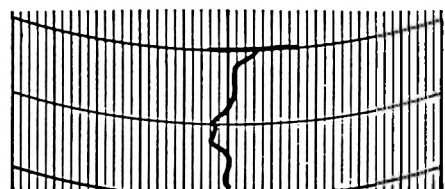
8. 3-10-45



9. 3-12-45



10. 3-13-45



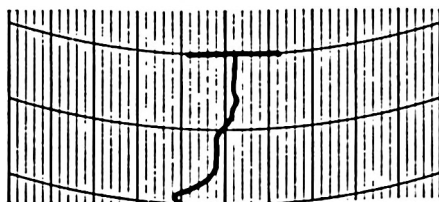
11. 3-14-45

carried her around the house for a while. Slept fairly well all night, waking up occasionally for a drink, but not crying. Complains of her eyes and neck hurting. Eating very good."

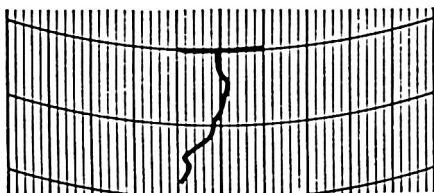
1. *Neurocalograph Reading*: Precopy. Original pattern, as made of case on entrance day, appears on each set of graphs for purpose of comparison.
7. Pattern quite opposite from original.
"Slept a few hours in afternoon. Talked. Ate fair supper. Slept fairly well at night although somewhat uneasy. Ate a nice breakfast and went back to sleep. Complains of eyes and keeps picking at nose. Rather quiet this morning."
8. Reading good.
"Slept all afternoon Friday. Ate a big supper. Had cramps, then went back to sleep and slept until 9 a. m. Ate a nice breakfast and lay awake the rest of morning."
9. Return of original pattern.
"Eating well. Uneasy Saturday night and all day Sunday. Sunday evening had bad crying spell, rolling with pain and holding stomach. Walks with a little guiding and help. Slept fairly well Sunday night."
10. Reading improved. In large majority of cases, when original pressure pattern returns, it is temporary, and usually disappears by itself in a day or two, unless there has been some trauma such as a fall, jar, sudden twist, or severe emotional upset. In those cases, we find it necessary to re-adjust because reading seldom will disappear by itself. Where there is a return of pattern without evidence of trauma, it is considered to be in a normal cycle of correction and in most cases, reading clears without aid from Chiropractor. An attempt to give an adjustment in this cycle of correction is seldom justified.
"Uneasy all afternoon. Ate nice supper. Slept one hour, woke up screaming and holding stomach. Slept fair the rest of night. Ate breakfast and was content the rest of morning."
11. A return somewhat of original pattern.
"Dozed a little in afternoon. Ate nice supper. When finishing, had another bad crying spell. Had three an hour apart. Slept fairly well rest of night. Hungry for breakfast. Uneasy first part of morning, but slept later on."



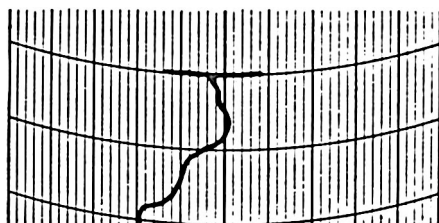
1. 3-3-45



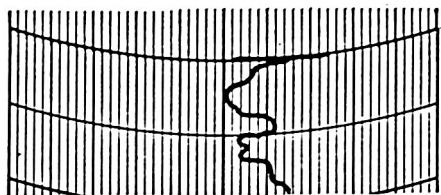
12. 3-15-45



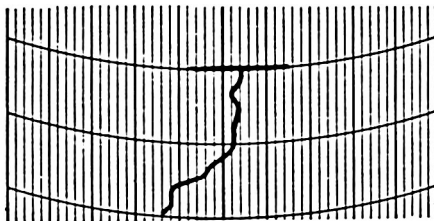
13. 3-16-45



14. 3-17-45

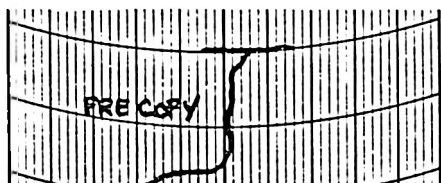


15. 3-19-45

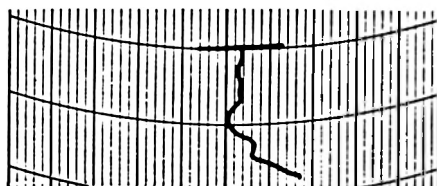


16. 3-20-45

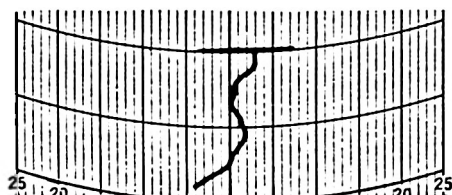
1. *Neurocalograph Reading*: Precopy. Original pattern, as made of case on entrance day, appears on each set of graphs for purpose of comparison.
12. Improved reading.
"Slept some in afternoon. Ate a good supper; restless all night, but no bad cramps. Ate breakfast and was contented the rest of morning."
13. Reading slightly rough. No return of original pattern.
"Restless all afternoon. Ate supper. Slept better than usual. Playful all morning. Cramps a few times, but not as bad as usual. Left arm and hand very touchy. Bad cramp at 12:30 a. m."
14. Same.
"Good natured all afternoon. Ate good supper. Four bad crying spells in evening and extremely restless all night. Said her stomach hurt her. Ate breakfast; played a while; slept an hour."
15. Return of original break pattern.
"Slept fair Saturday night. Sunday morning, bowels moved for first time without any help. Played all day Sunday and only woke up once Sunday night. Had one bad cramp Sunday evening. Vision seems to be returning. Eats good."
16. Reading clear.
"Slept all afternoon; ate supper; played a while; slept all night. No cramps. Doesn't seem to bend head downward at all. Can see a little when something is close to her eyes."



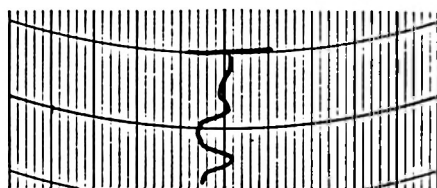
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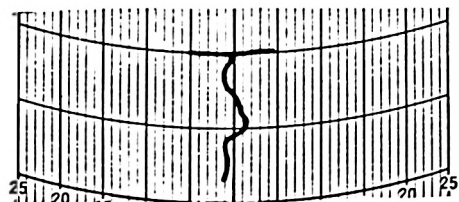
17. 3-21-45



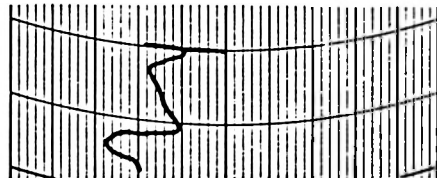
18. 3-22-45



19. 3-23-45



20. 3-24-45



21. 3-26-45

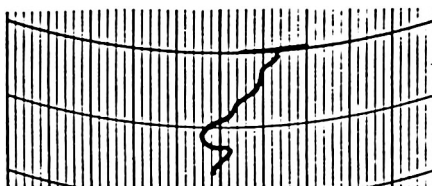
1. *Neurocalograph Reading*: Precopy. Original pattern, as made of case on entrance day, appears on each set of graphs for purpose of comparison.
17. Good reading.
"Slept from 1:30 to 5:30 p. m.; ate supper; played, and went back to sleep at 7:30, until 8:30 this morning. Walked two blocks in fresh air and sunshine."
18. Good reading.
"No cramps. Slept good all night. Good appetite and playful. I believe she can see a little better each day. Recognized the fish in the exercise room today."
19. Good reading.
"Walked home from clinic. In evening, walked six blocks. Slept good all night. No cramps. Head is tender yet. Hates to have hair combed. Walks about room unaided."
20. Very slight return of pressure pattern.
"Sleeping and eating very good. Still picks at nose occasionally, but doesn't complain of dirt in her eyes much any more."
21. Original pattern existing.
"Appetite good. No cramps. Still picks at nose. Sleeps very well. Her sight seems to be a little better each day."



1. 3-3-45



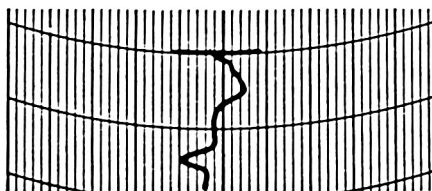
22. 3-27-45



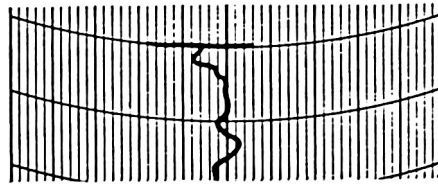
23. 3-28-45



24. 3-29-45

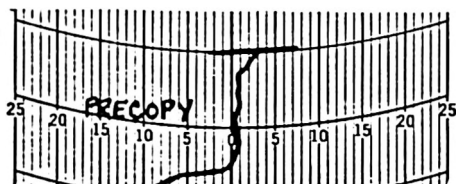


25. 3-30-45

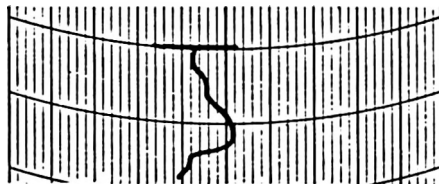


26. 3-31-45

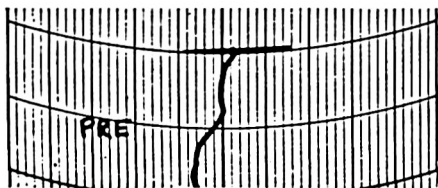
1. *Neurocalograph Reading*: Precopy. Original pattern, as made of case on entrance day, appears on each set of graphs for purpose of comparison.
22. Original pattern existing.
"Sleeps and eats very well. Loves to be outdoors. Full of energy."
23. Slightly improved.
"Still picks at nose and once in a great while complains of dirt in her eyes. Otherwise seems very good."
24. Further improvement.
"Doing fine."
25. A reversal of original pattern. Not unusual during corrective cycles.
"Doing very nicely."
26. Reading rough.
"Seems to be doing very well. At times seems to be very nervous. Her teeth will chatter and hands shake and she wants to be on the go all the time. Sleeps very well. Especially nervous today."



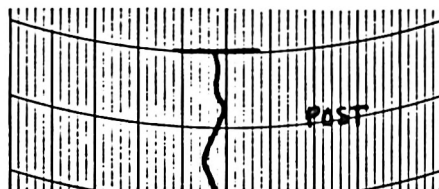
1. 3-3-45



27. 4-2-45



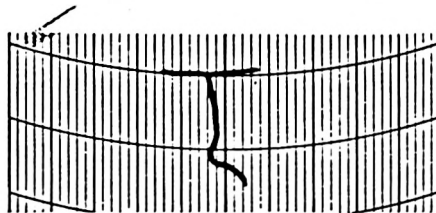
28. 4-19-45



29. 4-19-45



30. 4-20-45



31. 4-21-45

1. *Neurocalograph Reading: Precopy.* Original pattern, as made of case on entrance day, appears on each set of graphs for purpose of comparison.
27. Reading much improved, although slight evidence of original pattern existing. Patient dismissed from clinic and sent to local chiropractor for continued service. Seems to have fairly good control of functions: talking, walking, sight, and appears to be almost normal.
"Seems fine today. Not nearly as nervous but still picks at nose."
28. Patient returned to clinic. Previous few days, beginning to have difficulty in walking. When re-admitted to clinic, child unable to walk without aid except for a few steps. Comparative records made. Atlas adjusted ASR. This is a pre-adjustment reading, and reveals pattern similar to original.
29. *Neurocalograph Reading: Post-check* a few minutes after adjustment. Good.
30. Reading somewhat rough.
"Seemed a little better in evening and morning. Could walk better alone. Seemed to have a little more balance. Appetite no better. Slept good. Complained some of back during night."
31. Good reading.
Patient dismissed from clinic and returned to local chiropractor for continued care. The pain in the back and effects seem to be below or in the region of the spinal puncture that was made. Balance returned quite good within two days.

"Dear Doctor:

April 13, 1945.

"Shirley stood the trip home fine but was tired. We let her rest for a few days and then took her to Dr. _____.

"She seemed tickled to be home again and I haven't noticed her shaking with nerves like she did down there during the last week. She sleeps good at night. Her appetite has lessened and at times we have to coax her to eat. Her eyesight seems to be about the same, but as a whole, I would say she seems to be doing fairly well.

"The day after we got home we had a rather bad snow storm and she caught a cold as a result of it, but that seems to be getting better now.

Sincerely,

Mrs. _____."

"Dear Doctor:

May 15, 1945.

"Just a line to let you know how Shirley is getting along. I take her twice a week to have her checked. Two weeks ago she had a bad fall and Dr. _____ gave her an adjustment the next day. Now I have to watch her very close to keep her from running. Her balance is so much better but she tires quickly and falls very easily when tired. She is eating fairly well now and her sight is o.k.

Sincerely,

Mrs. _____."

"Dear Doctor:

June 20, 1945.

"Little Miss Shirley _____ is doing fine. Have had to adjust her twice following bad falls. She seldom walks any more, always running instead.

Yours very truly,

_____, D.C."

July 7, 1947.

"Dear Doctor:

"I am enclosing a picture of _____ taken in school last September. She does not change much in her looks, but she seems perfectly well, although we watch her very closely. Today, _____ is a healthy, normal child, and she has perfect vision.

"Sincerely,

"Mrs. _____"



CASE NO. 2887

In presenting this case, the B. J. Palmer Chiropractic Clinic hopes to establish in the minds of both practitioner and layman a graphic picture of what actually constitutes the causative factor in a case suffering from what has been diagnosed as hydrocephalus; also the Chiropractic procedure in correction of cause and return of patient toward health.

In this particular case, diagnosed as hydrocephalus in a large university hospital, the baby was brought to Chiropractic very soon after effect (enlarging of the head) was first noticed. Thus permanent damage apparently was slight. Had many months passed before case was brought to Chiropractic, its chances for recovery would have been greatly decreased and there would have been the probability of greater permanent distortion even though causative factor had been entirely removed.

The speed of recovery of this child should make us understand that bringing a patient to Chiropractic as soon as nerve pressure develops or at least as soon as any symptom is recognized, will certainly increase the patient's chances for complete recovery.

HYDROCEPHALUS

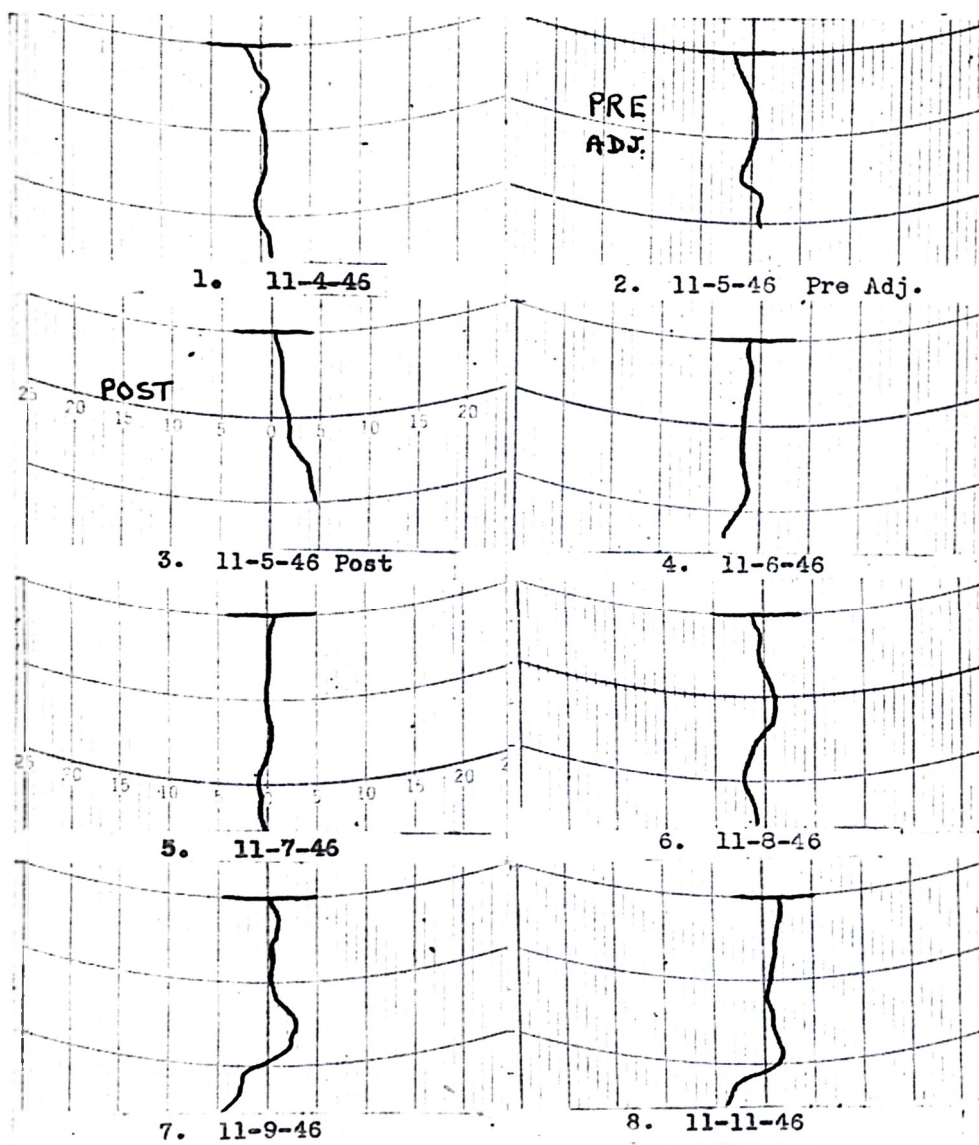
Dorland's medical dictionary defines hydrocephalus as follows: "A condition characterized by abnormal increase in the amount of cerebral fluid accompanied by dilation of the cerebral ventricles. The disease is marked by enlargement of the head, with prominence of the forehead, atrophy of the brain, mental weakness, and convulsions."

CASE HISTORY

Case Number 2887 — Male infant — Age three months — Weight 15½ pounds. Normal birth; no instruments used. Weight at birth: 8 pounds, 13 ounces.

Rash appeared on baby's face when about two months old, and doctor was consulted. Doctor observed fact that baby's head was growing faster than rest of his body. Baby then taken to the University Hospital at ———— where no hope was held out for his recovery. Parents told by doctors that medical science could do nothing for the baby.

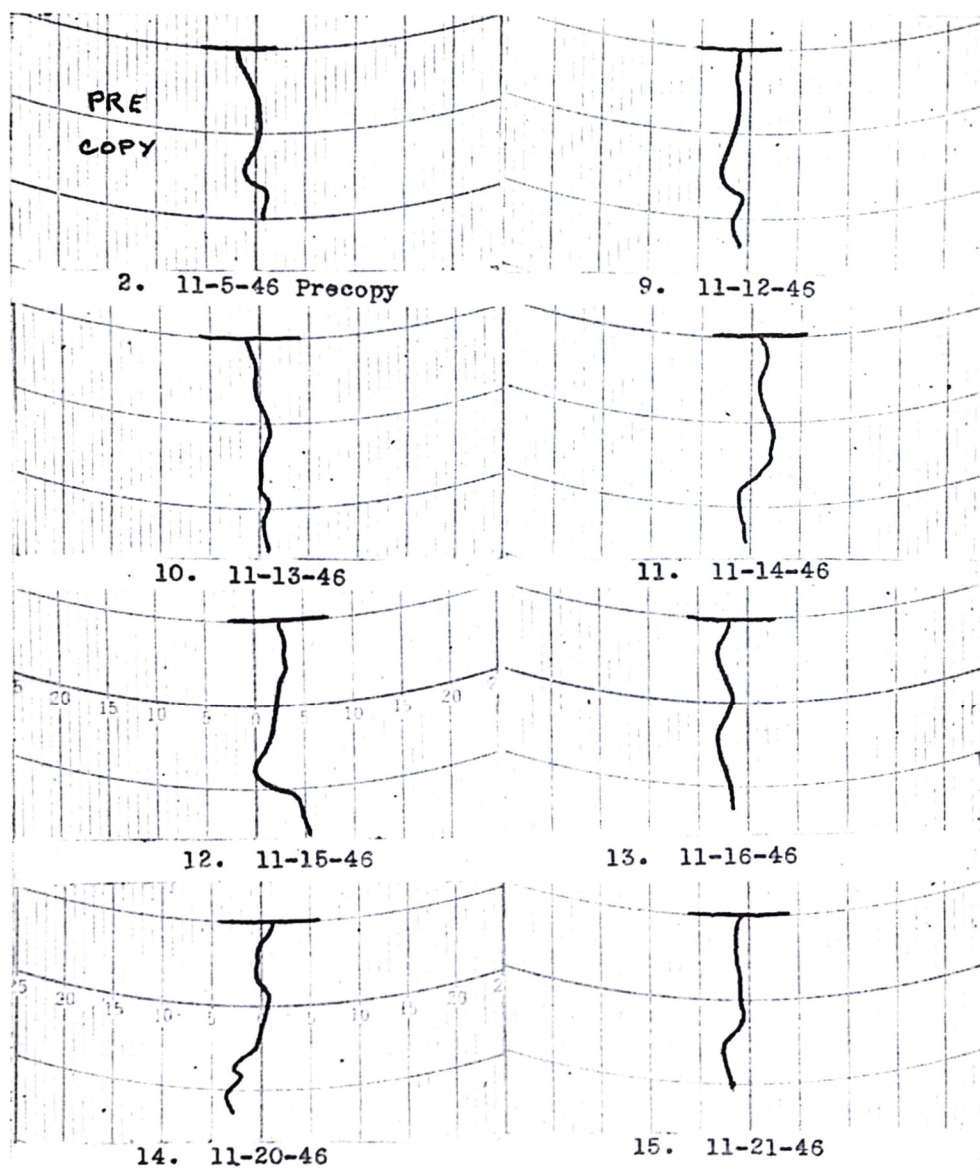
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Head measured 19 inches when brought to the B. J. Palmer Chiropractic Clinic on 9-12-46. (After Chiropractic analyses were made and before adjustment was given, parents took case to University Hospital for consultation. Letter which follows will explain why. When baby re-entered the B. J. Palmer Chiropractic Clinic on 11-4-46, head measured 20 $\frac{3}{4}$ inches (an increase of 1 $\frac{3}{4}$ inches). Baby's digestion and elimination normal. Father and mother both in good health.

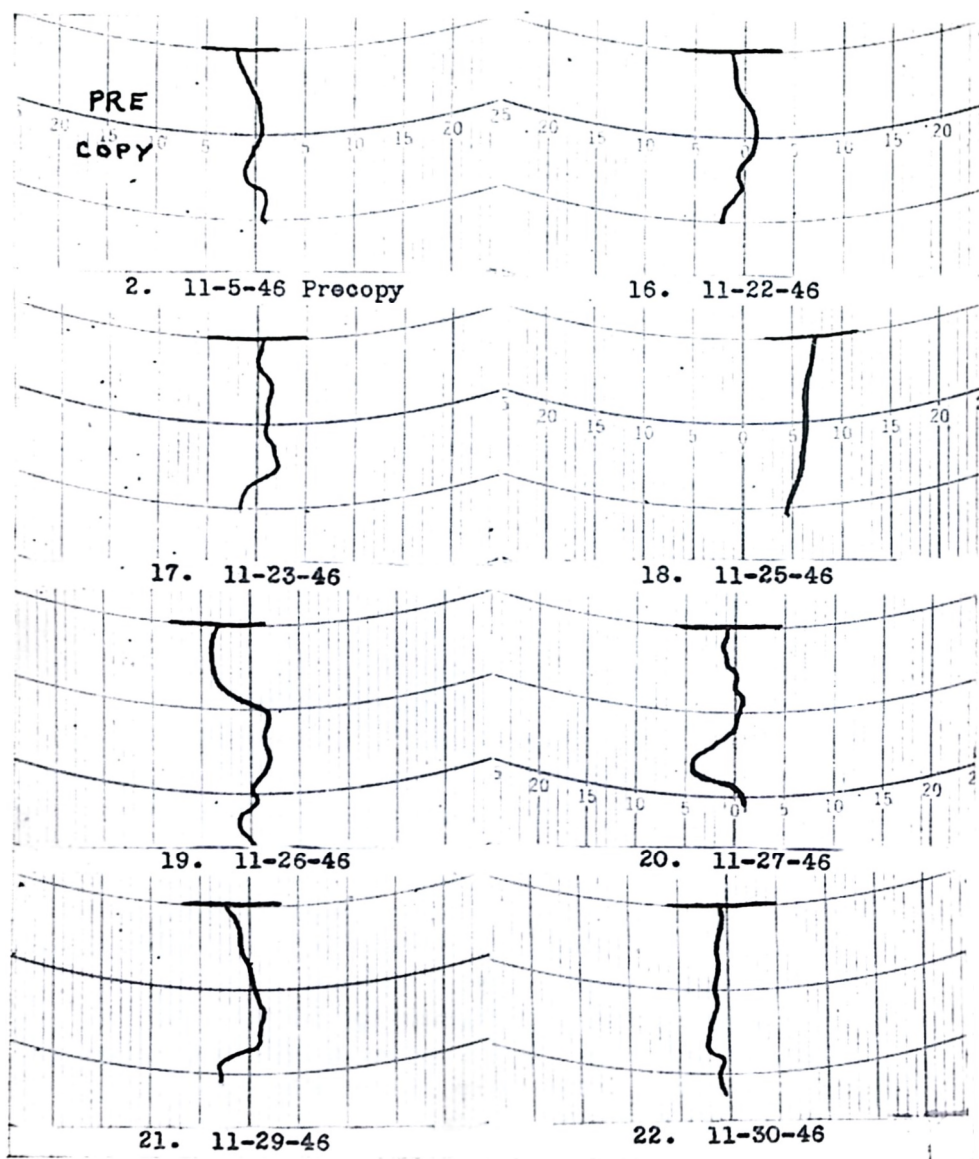
1. Patient first read with neurocalograph 11-4-46. The reading was made of the child's neck. Character of pattern noted. Evidence of pressure particularly at the atlas-axis (1st and 2nd cervical) region. Spinographs (X-rays of spine) were made, and analysis revealed the atlas (1st cervical vertebra) out of alignment.
2. The following day, 11-5-46, another neurocalograph reading was made; character of pattern being consistent with the pattern established the previous day. In sickness evidence of nerve pressure as revealed by neurocalograph is very much the same whether case is read for one day or for three months, until the existing nerve interference is removed. On this day, the atlas subluxation was reduced by a Chiropractic adjustment (a subluxation exists when we find vertebrae misaligned, producing interference to the normal transmission of life force).
3. After patient was adjusted, another neurocalograph reading was made, showing evidence of reduction of the existing subluxation.
4. Next day, reading reveals further clearing of the interference as a result of yesterday's adjustment of the subluxation.
Patient Report: "He slept better."
5. *Neurocalograph Reading:* Good.
Patient Report: "Head apparently decreased $\frac{3}{4}$ inch. Skin on head not as drawn or tight. Urine increased. Veins in head do not protrude as much, especially on right side. Appetite very good. Sleeps well. Head softer on top. Bridge of nose not so broad."
6. *Neurocalograph Reading:* Character rough. Slight return of interference.
Patient Report: "Slept on back 1 $\frac{1}{2}$ hours. Able to wrinkle brow more. Sleeps better at night. Better appetite."

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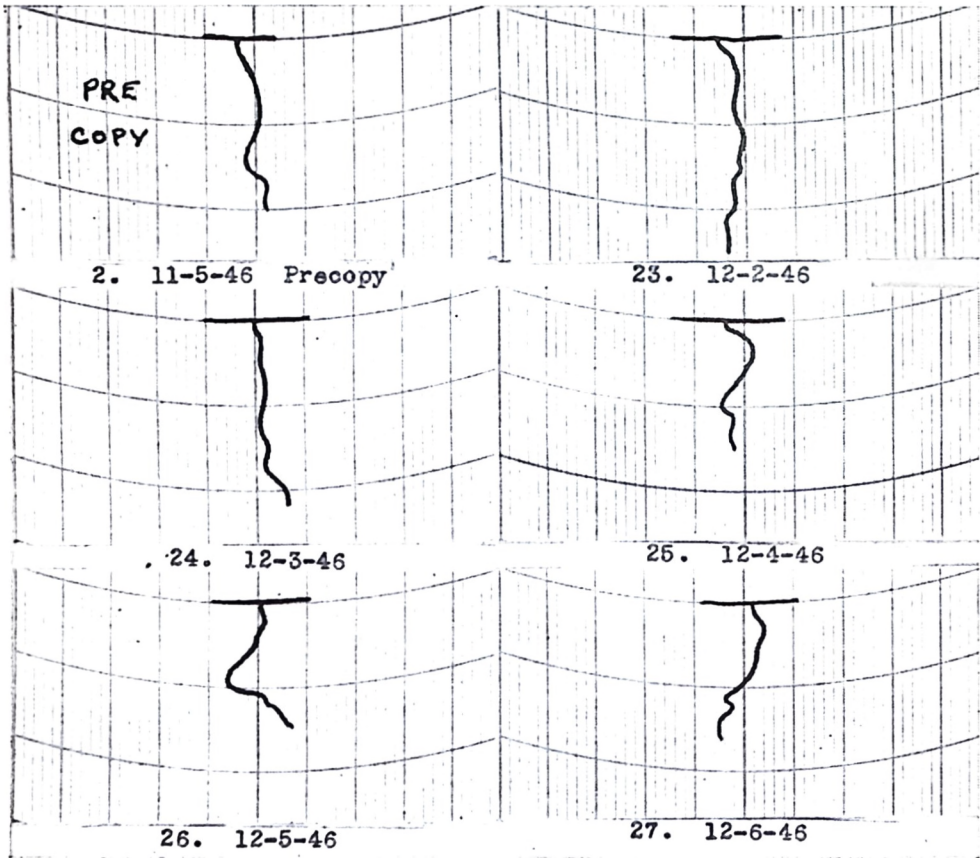


7. *Neurocalograph Reading*: Further return toward original vertebral subluxation. (At first return of evidence of nerve interference we usually do not re-adjust, knowing that muscles in the patient's spine must, through intellectual adaptation, eventually make the correction permanent; that is, hold the vertebrae in their normal position. Practically every case goes through what we refer to as a cycle of correction. Evidence of pressure may return after the adjustment is made, but in a few days this evidence usually disappears and the patient is much better than if outside help by another adjustment was required to reduce the interference. However, falls, jars, quick movements of the head, will destroy the adjustment and with knowledge of such, along with a return of the pressure pattern, another adjustment is given and the patient is advised to be more careful.)
Patient Report: "Urine has a different odor. Frowns a lot more. Indentation on forehead more noticeable. Skin looser. Good natured."
8. *Neurocalograph Reading*: Much better.
Patient Report: "Eyes have different expression; smaller and not so deep set. Better natured."
2. *Neurocalograph Reading*: A copy of the original pressure pattern made day adjustment was given. Placed here for convenience in comparing neurocalograph patterns.
9. *Neurocalograph Reading*: Good. You will note lower part of pattern is not consistent. After placing neurocalograph detectors on a patient's neck, unless considerable time elapses before reading, needle will fluctuate and give a false graph. This false graph appears within first half-inch of reading and does not interfere with upper cervical graph.
Patient Report: "Bowel movement has strong odor. Eyes shut completely when he sleeps on back."
10. *Neurocalograph Reading*: Slightly rough.
Patient Report: "Head is 1¼ inches smaller than when we came to clinic. Urinates more; strong odor."
11. *Neurocalograph Reading*: Improved.
Patient Report: "No change."
12. *Neurocalograph Reading*: Improved.
Patient Report: "No change."

Continued on next page



13. *Neurocalograph Reading*: Reversing the original somewhat. This is not an unusual occurrence and is not to be interpreted as an indication that all is not progressing properly.
Patient Report: "Sleeps better at night." (Parent left on business trip for 2 days.)
14. *Neurocalograph Reading*: Pattern is still reversed in pressure area.
Patient Report: "Fingernails and hair grow faster. So much better natured."
15. *Neurocalograph Reading*: Pattern improved.
Patient Report: "Rests much easier on back. Much improved."
2. *Neurocalograph Reading*: Precopy to facilitate comparison.
16. *Neurocalograph Reading*: Slight return of original pattern.
Patient Report: "Skin breaks out from poison in urine. Head changing in shape and size; not so feverish."
17. *Neurocalograph Reading*: Improved.
Patient Report: "Tries to pull head forward when lying in my arms."
18. *Neurocalograph Reading*: Reading very good.
Patient Report: "Head gone down another $\frac{1}{2}$ inch, making $1\frac{3}{4}$ inches in all. Urine strong. Hair growing more rapidly. Can now get things over head that we couldn't when we first came to clinic."
19. *Neurocalograph Reading*: Pattern rough.
Patient Report: "No change."
20. *Neurocalograph Reading*: Improved.
Patient Report: "Urine strong in odor and color. Eyes have more life and sparkle. Disposition good. Cutting two teeth on top."
21. *Neurocalograph Reading*: Decided return of original reading.
Patient Report: "Soft spot doesn't seem to be so large and is softer than when we first came. Veins in head are lighter."
22. *Neurocalograph Reading*: Reading gone. Please note that as time goes on, when evidence of pressure returns, it does not stay as long.
Patient Report: "Has more control of head and tries so hard to lift it when lying back. Tries to sit up straight. Shows signs of knowing people. Eyes look better."



2. *Neurocalograph Reading*: Precopy.
23. *Neurocalograph Reading*: Some return of original pattern.
Patient Report: "Sleeps longer on back. Tries to turn over alone. Better control of hands. Seems happier and more contented."
24. *Neurocalograph Reading*: Reduced.
Patient Report: "Back of head is forming better. Head doesn't sweat as much."
25. *Neurocalograph Reading*: Quite sharp. Evidence of original pressure return.
26. *Neurocalograph Reading*: Reading still not good, but considerably improved.
Patient Report: "Condition the same."
27. *Neurocalograph Reading*: Still some evidence of original pressure.
Patient Report: "Rested well last night. More playful. More observant. Leaving clinic today."

Parents instructed to take the child to their local Chiropractor for continued observation. Patients are not held in this clinic until they are completely well unless they so desire. They are referred back to their local Chiropractor after improvement has been definitely established, and we feel that we can return to the local Chiropractor necessary information that will enable him to carry on the correction that has been started.

Should these readings continue similar to the original, as they have been doing the past three days, patient must be re-adjusted. Time, however, is necessary for Innate to make corrections. We too often become impatient and adjust again too soon — no doubt relieving the interference and perhaps affording some relief to patient when pain exists, but often delaying permanent correction since muscles must eventually anchor and hold vertebrae in their proper position.

Vertebrae normally have a certain range of motion in which nerve pressure does not exist. Getting vertebrae to hold within their normal limits is considerably different than setting a broken bone where splints or casts immobilize. Time is necessary in the permanent reduction of any subluxation.

Davenport, Iowa, Dec. 5, 1946.

"TO THE B. J. PALMER CHIROPRACTIC CLINIC,
DAVENPORT, IOWA.

"Dear sirs:

"My son, _____, was born May 25, 1946, in _____ Hospital, _____, _____. The birth was very easy, and only four hours duration. No instruments or stitches at birth. Weight 8 pounds, 13 inches. The M.D. called him one of her prize babies.

"The M.D. was taken sick after she had seen Johnnie when he was two weeks old. She didn't see him again until he was almost three months old. I took him to her then for a rash on his face. She told me she wasn't at all concerned about the rash; and it was then that she told me his head was growing too fast for the rest of his body. Up to this time I was nursing him, but the shock of this ruined the quality of my milk, so I put him on a formula.

"The M.D. made arrangements for me to take the baby to _____, _____, to the University Hospital, but when the appointment didn't come, I consented to come to the B. J. Palmer Chiropractic Clinic until _____ came through with an appointment. My husband's uncle is a Chiropractor and we decided to let him see the baby while we were waiting for Ann Arbor to call. After the baby was a month old, he slept on his 'tummy' and couldn't or wouldn't sleep any other way. The Chiropractor gave Johnnie three adjustments, and after the first adjustment he would nap on his back. I still didn't have any faith in Chiropractic — thinking it was just luck.

"Our uncle told us he thought he could help the baby, but he would rather have us take him to the B. J. Palmer Chiropractic Clinic at Davenport. The uncle made the arrangements for us to come to the Clinic. After the baby had his X-rays and examinations, the call came from _____. Thinking I was being forced by relatives to stay here, I became angry and demanded to be taken home at once. Still thinking Chiropractors 'quacks' because they lacked letters after their names, their short training period, and in view of the Reader's Digest article of June, 1946, I figured they couldn't possibly know how to treat my baby. So we took the baby home.

"On September 18, 1946, we took Johnnie to ———. They checked him in all possible ways and gave us no hope at all, saying they were sorry, but medical science could do nothing for him. If he could be helped it would have to come from elsewhere. This was a shock to me—to have a medical man stumped. They asked us to bring him back in a month. This I did. At this time a neurologist saw the baby. He said if there was anything wrong with the child except the size of his head it was that he was too smart for his age. This doctor was about as encouraging as the former M.D. The M.D. said the baby was in no pain, but that he would go to sleep and just wouldn't wake up. I went home and haven't heard from them since.

"As there was nothing else wrong with the baby I felt that somewhere there must be someone or something that could help him. So, my husband's side of the family, who are all Chiropractic-minded, started to talk to me again about the B. J. Palmer Chiropractic Clinic at Davenport.

"Thinking I had nothing to lose, I consented to return, providing they would take us back at the clinic. So, on November 4, 1946, they allowed Johnnie to check in. Again, Johnnie had X-rays and other tests. During his absence from the B. J. Palmer Chiropractic Clinic, his head had grown an inch and three-quarters ($20\frac{3}{4}$ inches total size of his head). Johnnie's first and only adjustment was on Tuesday at noon. By three o'clock the next day (Wednesday) his head had gone down three-quarters of an inch.

"These improvements followed: The skin on his head loosened enough so now he can frown and make different facial expressions. The skin on his head was shiny and drawn, but now it is loose. His hair hardly grew at all, but now he has plenty, and it is still coming in. The 'soft spot' on his head was hard and could hardly be found because of pressure. It is now soft and getting smaller. His eyes were bulging and glassy; now they are clear and do not protrude. The bridge of his nose is more narrow. The veins on the side of his head were very dark, but now are fading out. His head is taking a different shape. His head has been so heavy up to now that he hasn't tried to sit up or turn over, but now he tries to do both. Recognizes people and voices. He has a huge appetite, and has a better disposition.

"The baby's head has gone down an inch and three-quarters in a month's time. His head measures 19 inches. He now weighs 23 pounds and is 27 inches long.

"I do not consider Chiropractors 'quacks' like I did, and can also see how hard the students have to study to get through the course. Also, I learned that Chiropractors are entitled to use 'letters' after their name, signifying a degree. These observations were made during my month's stay.

"I give the B. J. Palmer Chiropractic Clinic my permission to use this testimonial or any part of it as they see fit.

Signed _____"

July 31, 1947.

"Dear Doctor:

"Johnnie's head measures almost 22 inches. He is 33 inches long, and weighs 32 pounds. He is almost a perfect size 2. He was 14 months old the 25th of July. He says a few words, and can almost walk alone. Some people do not even notice the size of his head being out of proportion with the size of his body.

Sincerely,

Signed _____"

EPILEPSY

Dorland's Medical Dictionary defines epilepsy as follows: "a chronic functional disease characterized by fits or attacks in which there is loss of consciousness, with a succession of tonic or clonic convulsions. The fit lasts from five to twenty minutes, and the attacks vary greatly in frequency. A fit in which there are severe convulsions and loss of consciousness, or coma, is termed *grand mal*. The mild form in which vertiginous or other sensations take the place of convulsions, is termed *petit mal*."

CASE HISTORY

Case number 2348.

Entered clinic 8-18-45.

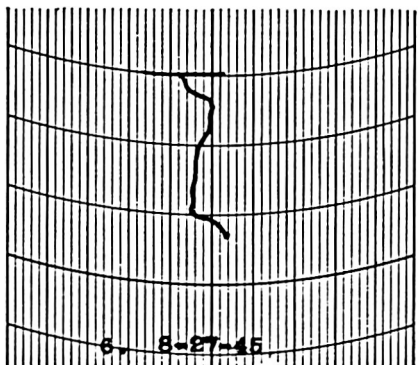
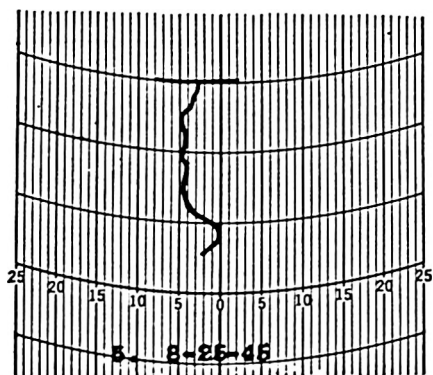
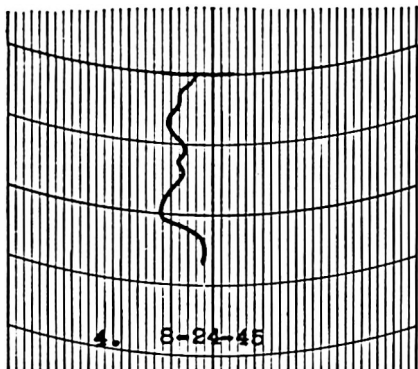
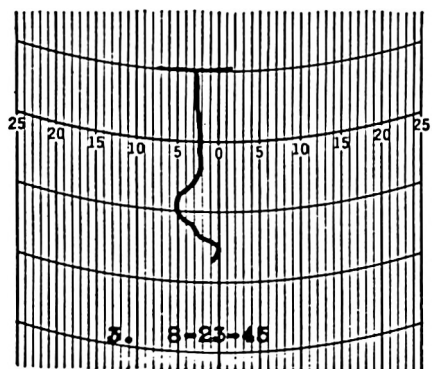
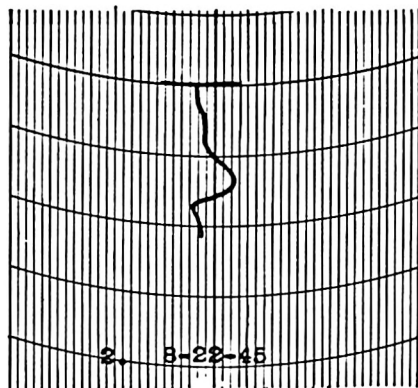
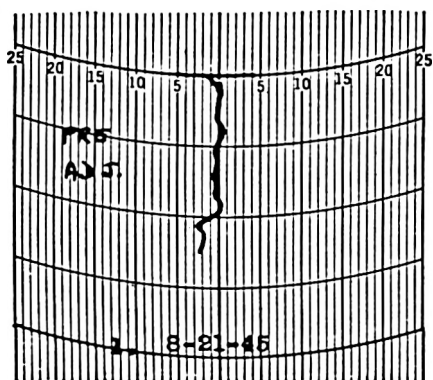
Male: Age 5 years.

March, 1944: Streptococci infection in inner ear. Started falling many times each day; often hurt himself. Runs a temperature at times. Very badly constipated. Twitching of left hand and arm. Trouble around right rolandic area.

Encephalogram negative.

Tonsilectomy, appendectomy, hernia operation, since this trouble started.

Father, mother, and sister all in good health.



CASE NO. 2348

Five-year-old male.

Entered clinic 8-21-45.

1. *Neurocalograph Reading*: (Pre-adjustment) This graph is sick pattern with which patient entered clinic. It is graph that will be used in comparing post-adjustment records.

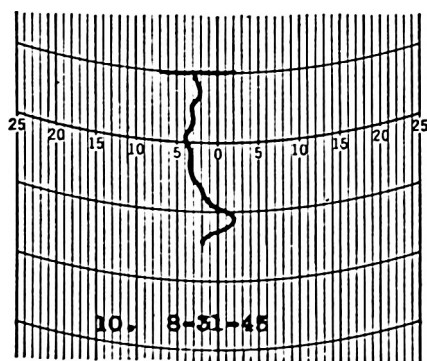
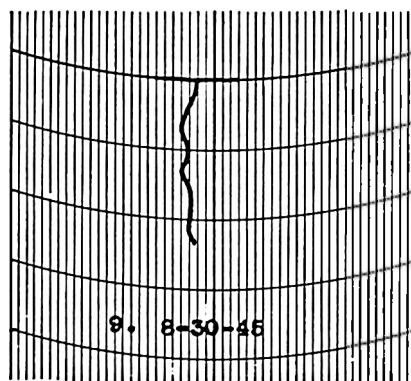
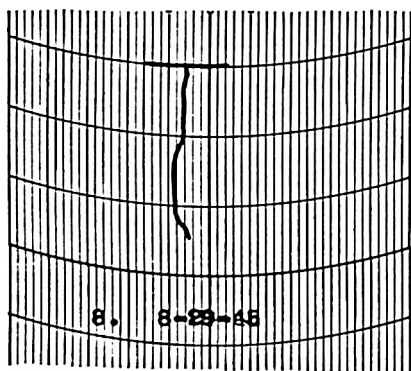
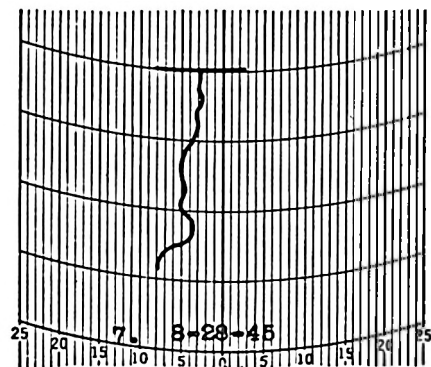
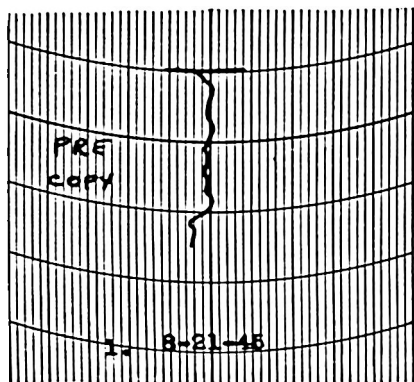
NOTE: Children often move or cry, making neurocalograph reading rather difficult—no doubt bringing into graph irregularities that may complicate interpretations.

2. *Neurocalograph Reading*: (Post-check) Reveals reduction of evidence of interference. When reading with neurocalometer or neurocalograph, if the detectors are not held against the tissue for at least ten to fifteen seconds before starting glide, in the majority of cases there will be a considerable line variation, as appears in these graphs. These are not to be considered as evidence of interference.
3. *Neurocalograph Reading*: Very clear.
4. *Neurocalograph Reading*: Rather rough.
5. *Neurocalograph Reading*: Some improvement. Pattern in atlas region has been opposite original the past two days.

Parent Report: "Since Tuesday, Jimmie has had two natural bowel movements. Until now, I gave him enemas regularly, as it was impossible for him to have one otherwise. He has not fallen since Monday. Twitching in his arms and hands left for a day. Appetite favorable. Sleeps very well. Has been nervous today, with noticeable movement of hands and arms."

6. *Neurocalograph Reading*: Evidence of interference pattern return. No adjustment.

Parent Report: "Has felt very well and has had no jerking in arms and hands. Good appetite. Natural bowel movement. Not so nervous."



1. *Neurocalograph Reading*: (Precopy) Copy of sick pattern original for convenience in comparison.
7. *Neurocalograph Reading*: Clearing.
Parent Report: "Not much appetite for two days, but he feels all right. Restless last night. Plays well and doesn't complain."
8. *Neurocalograph Reading*: Very good. Although original pattern returned, it disappeared, showing evidence of Innate correction, which means much more to patient than a readjustment by the Chiropractor.
Parent Report: "Has been fine, but constipated. Appetite improved."
9. *Neurocalograph Reading*: Still clear.
Parent Report: "Very good. Appetite fair. Not so nervous. Good elimination."
10. *Neurocalograph Reading*: Slightly rough. Patient dismissed and advised to return to local Chiropractor, for continued care.
Parent Report: "Almost fell three times today, but hasn't gone clear out. Rather nervous. Gained five pounds since we came two weeks ago."

Although this patient has needed only one adjustment, a Chiropractor's observation for period of several months is advisable. We expect, temporarily at least, returns of original interference pattern. If Chiropractor understands these cycles of correction, which invariably patient must undergo, then few adjustments will be given.

If original interference pattern, or any pattern, manifests itself over a period of considerable time, it would be interpreted as a sick pattern and in time deterioration in general health would be expected. However, under Chiropractor's observation, this would be detected and correction made.

March 17, 1948.

"Dear Sirs:

"We are writing this letter not only as a testimonial, but in the hope that should other parents find themselves in similar circumstances that they may receive the inspiration to try Chiropractic before saying that their case is hopeless.

"In the Spring of 1943, my two children and I went to live with my mother. My husband was in the Navy and I had accepted a teaching position. We were all supposedly in good health but in March, 1944, Jimmie, age four, became ill with the croup. We tried to break it up as we had before whenever he had it, but we were unable to relieve him.

"My husband came home one week-end on a pass and by the time he arrived, we were frantic. We called the doctor, and he said that since Jimmie had been ill for two days and nights and was getting worse we should take him to a hospital. We did, and there wasn't a doctor present to examine him to see if he had the croup or perhaps something else. He was given a shot of adrenalin and followed by sulfa. This relieved him. He remained in the hospital for two days and nights.

"When we got him home, he was all right for about three or four days and then he developed quite a high fever. I went to the doctor's office and he said that he was afraid it might be something quite serious and suggested we take him over to a laboratory and let them take a culture of his throat. We did and he said it looked like Diphtheria, but it wasn't. It looked more like a strep infection so they sent us to an eye, ear, nose and throat specialist. (All of this happened in one afternoon.) He said the only thing for him to do was to puncture the ear, that both were swollen quite badly. They gave Jimmie some gas and punctured both ears and we took him home.

"Sulfa also followed this operation and then we took him back every other day to have him clean out both ears. The left ear cleared up, but 'proud flesh' formed on the right ear drum and it took more treatments for that. Sometimes we would go at one o'clock and wait until five to get in and all this time he was taking sulfa and running a fever. He seemed to be getting better, his ears were beginning to stop draining, and all of a sudden he started to stumble. I thought at first he was falling over his feet and objects, and then realized that he was passing out quickly and coming to and catching himself.

"I called the doctor and told him what I had discovered and he told me to take his temperature every hour for two days and if he didn't get better, he was going in there and explore. I said, 'You don't know for sure what is the matter?' He said that it was mastoiditis or looked a lot like a mastoid condition. I said

that if he didn't know what he was going in after, I certainly didn't want him to operate and explore.

"We went back to the regular doctor (the one who had sent us to the eye, ear, nose and throat specialist) and asked him what he thought could be making Jimmie stumble. He said he didn't agree with the ear specialist. He said that he thought it was a calcium deficiency. He gave me a prescription for some pink calcium tablets and we gave those to Jimmie.

"My sister and her husband were home from Waco, Texas. They had been quite concerned about our boy and wanted me to take him to a large medical clinic in Temple, Texas. I called my husband long distance and he thought it a good idea, so we left early the next morning. We got an appointment two days later. Jimmie was examined and I was told that he had a hernia which should be taken care of soon and after looking at his throat, they thought he should have his tonsils removed. In their diagnosis, they said it looked like petit mal (epilepsy).

"I went all to pieces and he assured me that if that is what he had that he could live fairly comfortably the rest of his life on some 'powders.' He advised me to take him home and have his tonsils removed and also have the hernia cared for. I have often wondered why they didn't do this while we were there because they had complete facilities and a clinic which compares favorably with the best in the country. I took him home and about a week later I decided to take Jimmie to a doctor who lived close by.

"He said he thought it was worms and gave Jimmie a colonic irrigation and some sort of electrical treatment. He also manipulated Jimmie's spine. After about a week of this, Jimmie had a convulsion. I was scared to death and tried to call a medical doctor, but couldn't get him and when I finally did he said he would be all right but refused to come out. I finally got another doctor who came out immediately and by this time, Jimmie was all right and he gave him a pill. He said he thought that Jimmie should have his tonsils out and we decided to have them removed two days later. He had another convulsion the next night, but not as bad as the previous one.

"His tonsils and adenoids were removed, but his condition did not improve. He didn't have any more convulsions but was passing out every few minutes. He was in and out of a coma

constantly. School was out by that time, so I went to join my husband. In June, 1945, we arranged through the Navy medical officer to have the hernia taken care of.

"An Army surgeon was to perform the operation and the Navy doctor to assist. The surgeon said the night before that he thought while he was operating he would look at the appendix and if it looked bad, he would remove it and of course we said all right. The operation was successful, both hernia and appendix taken care of, and Jimmie was up and feeling fine except that he was still in and out of coma. When he was out of this so-called coma, he was very alert; his mind was never affected.

"Then we decided to take him to another medical clinic upon the advice of the Navy doctor. One of the pediatricians told us that they wouldn't even consider his case as it was entirely out of their field because it looked too much like a brain abscess or tumor. We made plans to take him to the Naval Hospital in San Diego, California, where he would have the services of a neurologist.

"We arrived in San Diego, August 2, 1945. Jimmie was placed in the children's ward of the hospital. Two days later, they took an X-ray and found nothing at all on the brain. The surgeon said they would take an encephalogram, which is another type of X-ray. This was also negative: his brain apparently was in good shape. We went up to see him that evening and found they had him in an oxygen tent. He was suffering from headaches and of course we thought that each moment would be his last.

"He improved enough for us to take him home in about ten days. The medical officers in the hospital did not give a diagnosis and offered little encouragement. We were ready to give up, but a minister and his wife who had been life long friends of my husband, asked us to take him to a Chiropractor. She was a nurse and went to this Chiropractor and found him to be very good.

"I thought I would try anything and so we took our son to him. Jim was under his care for approximately one year. We made frequent visits to the Chiropractor's office and each time (practically) Jimmie had an adjustment. He helped Jimmie for his normal periods increased to a week or two at a time and then he would be sick for about a week. This continued for about a year.

"The doctor had mentioned the B. J. Palmer Chiropractic Clinic in Davenport to my husband and me many times, and the

wonderful results they obtained. One day I called him and asked him if he thought it would be a good idea to take Jimmie to Davenport. He said he thought it a grand idea because they might do something that he apparently wasn't doing. He called Doctor Palmer and made arrangements for us to enter the clinic the next week.

"He closed his office and we left August 15, 1945. My sister met us in Kansas City and I might add that we were both a little skeptical. I believe it was only a natural feeling. We arrived in Davenport and early the next morning, went to the B. J. Palmer Chiropractic Clinic. When we walked in and saw the clean and hospitable surroundings (something we hadn't encountered before), we were amazed to say the least. Jimmie had been so frightened before but the way the doctors and nurses handled him, he was soon their friend and even to making things out of Tinker Toys and taking them over and showing them to Doctor Palmer and Doctor Sherman.

"After a thorough physical examination, X-rays were made and urinalysis as well as blood tests. The next day, Jimmie was adjusted in the upper cervical region. He rested for about two hours and then we went to our room. Jimmie immediately became more alert and his eyes started getting clearer. His appetite increased and we noticed he wasn't so nervous after his adjustment. We took him to the clinic every day for a check, and the second week more X-rays were taken.

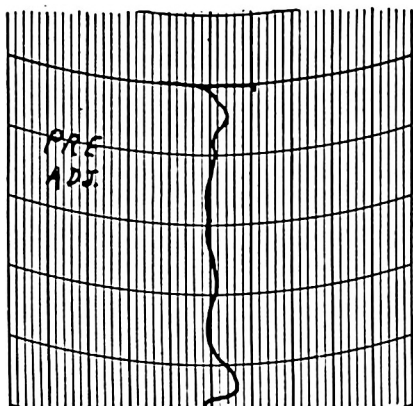
"Just before we left for home, I had a conference with Doctor Sherman and he told me not to expect too much, that he might have a recurrence, and to have him checked by our Chiropractor when we got home. Jimmie had a mild attack in November. That was the last time our boy was ill.

"We are so grateful and it may be interesting to know that after my husband was discharged from service, he enrolled as a student in the Palmer School of Chiropractic.

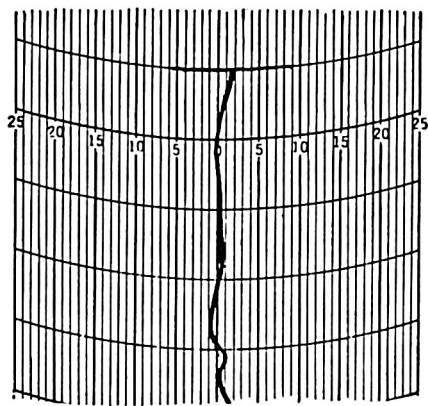
(Signed) Mr. _____,
Mrs. _____,"

TUMORS

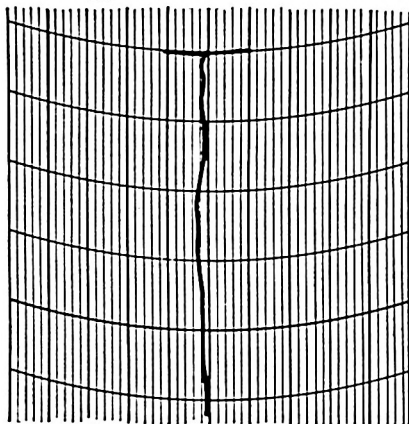
Dorland's Medical Dictionary defines tumor as follows: "a swelling; a morbid enlargement; a mass of new tissue which persists and grows independently of its surrounding structures, and which has no physiologic use."



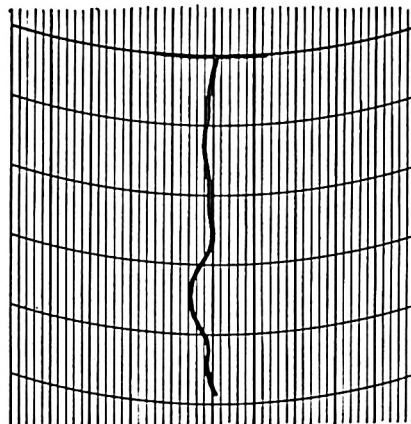
1. 8-17-45



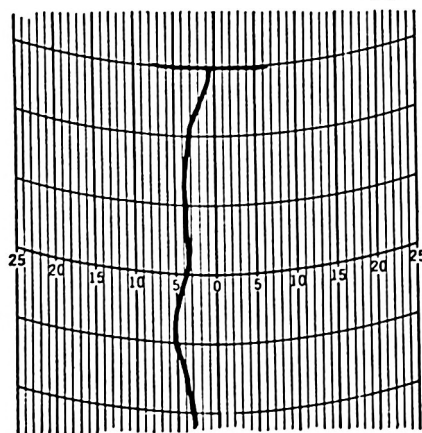
2. 8-17-45



3. 8-18-45



4. 8-20-45



5. 8-21-45

CASE HISTORY

Case No. 2342.

Female: Age 49 years.

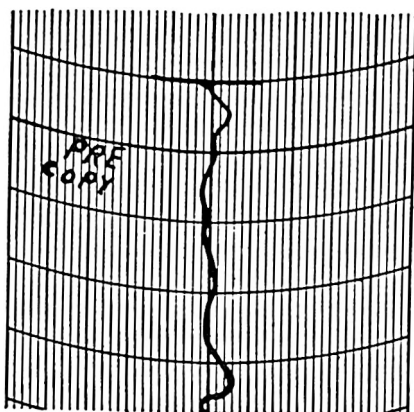
Patient complains of very weak spells with severe abdominal pain extending into limbs; extremely difficult menstruation; and lack of sleep at night. Symptoms first noticed in 1926. A medical doctor was consulted and an operation was performed for a badly infected appendix and a misplaced uterus.

After operation, patient noticed, in addition to original symptoms, difficulty in urinating, and lumps appearing in the breasts. These lumps grew in size and became more bothersome as the years went on.

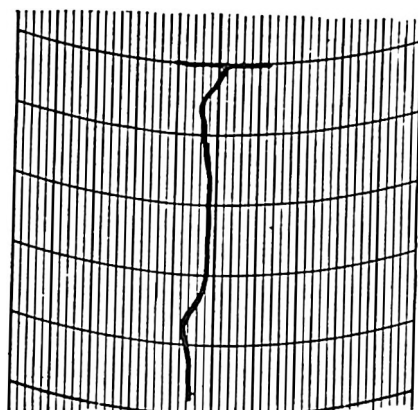
Again in 1944 a medical doctor was consulted. He advised an operation on the bladder and uterus. It seemed evident, there were numerous small tumors in the uterus and possibly a tumor pressing on the bladder.

Patient did not consent to operation and entered the B. J. Palmer Chiropractic Clinic on August 16, 1945.

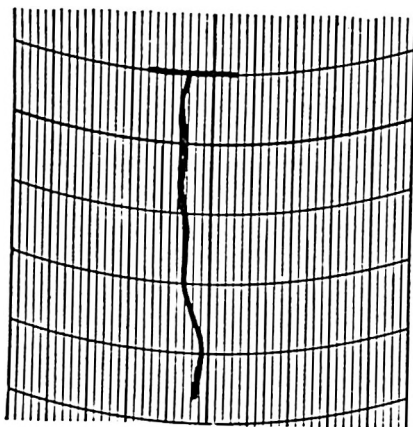
1. *Neurocalograph Reading*: Pre-adjustment reading made in cervical region represents the sick pattern of the patient. Axis is adjusted P.R. and patient is left a few minutes on table.
2. *Neurocalograph Reading*: Post-check a few minutes after adjustment is given. Note the reduction of pressure pattern. Patient wheeled back to rest on ambulatory cot, extreme care taken not to jar the neck, and requested to rest, sleep if possible for two or three hours.
3. *Neurocalograph Reading*: Very good.
Patient's Report: "Terrible pain between shoulders and sore all over."
4. *Neurocalograph Report*: Good.
Patient's Report: "Pain in neck and lower part of back, can not rest or sleep very good."
5. *Neurocalograph Reading*: Good.
Patient's Report: "Pain in back, very nervous, can't sleep."



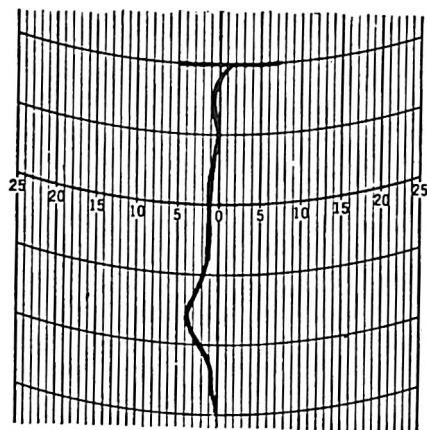
1. 8-17-45



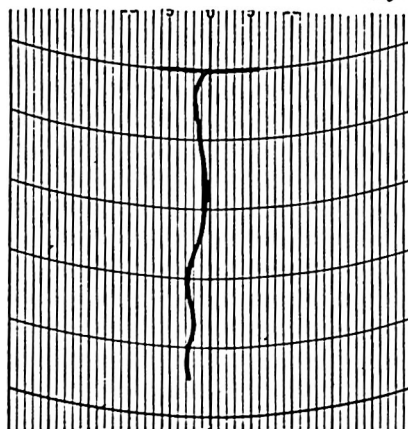
6. 8-22-45



7. 8-23-45



8. 8-24-45



9. 8-25-45

1. *Neurocalograph Report*: Copy of sick pattern placed here for convenience of comparison.

6. *Neurocalograph Reading*: Good. Pattern shows an opposite swing at the superior, which, although not considered good, is usually transitory in nature and as a rule disappears within a day or so, and does not require an adjustment. If however, it were to consistently remain over a period of several days, respinographing is advisable.

Patient's Report: "No change."

7. *Neurocalograph Reading*: Better.

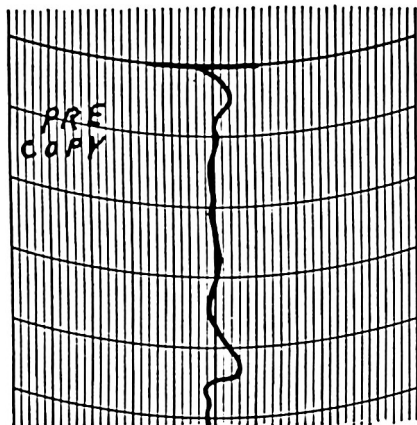
Patient's Report: "Feel quite sore over whole body, with a warm glow over body."

8. *Neurocalograph Reading*: Slight tendency to right swing again, which is opposite to original pattern.

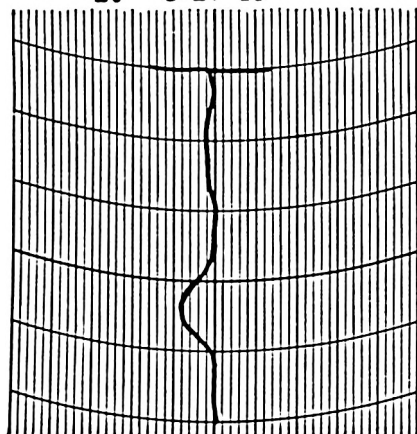
Patient's Report: "Still have pain and soreness in back and neck. Stomach ache last night."

9. *Neurocalograph Reading*: Somewhat improved.

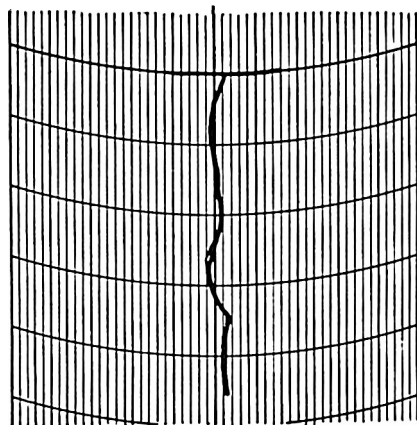
Patient's Report: "Still feel very miserable. Pain in lower back and in right leg. Get very tired and sore during night. Sleep about half of the night."



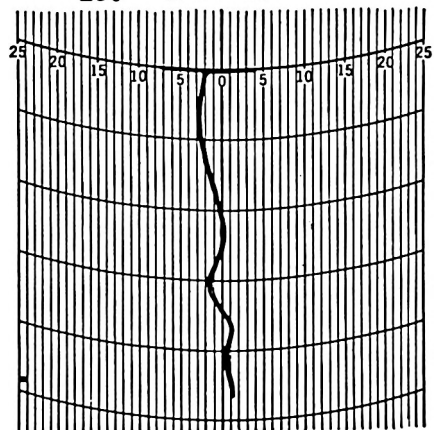
1. 8-17-45



11. 8-28-45



10. 8-27-45



12. 8-29-45

1. *Neurocalograph Reading*: Copy of sick pattern placed here for convenience of comparison.
10. *Neurocalograph Reading*: Rough.
Patient's Report: "Feel somewhat better at times. Still have pain in lower back. Sleep fairly good till four o'clock, then wake up with a nervous, tired feeling."
11. *Neurocalograph Reading*: A slight shift toward original pattern.
Patient's Report: "Feel sick and nervous. Pain between shoulders and lower back. Sleep poor."
12. *Neurocalograph Reading*: Final reading improved.
Patient's Report: "Still have pain in lower back. Feel somewhat better than I have been. Slept fairly good last night."

Patient has completed the necessary two weeks service in the Clinic; and since Neurocalograph readings remained relatively good with practically no indication of consistent return of original sick pattern, patient was permitted to leave clinic with follow up care to be administered by her local Chiropractor.

The Clinic always attempts to send to the Chiropractor who is to continue service to the patient as much information relative to the various tests, and particularly to the Chiropractic analysis, as possible. We feel the greatest service the B. J. Palmer Chiropractic Clinic can render is making the correct analysis: The knowledge of existing interference to flow of life forces between brain and tissue cell; the vertebra or vertebrae that are producing this interference; the accurate listing or listings, which constitutes the various directions in which the offending segment or segments have abnormally gone; and, of course, the proper recommendation as to adjustment to be given.

After we have made the original adjustment, Neurocalograph reading showing reduction to be quite complete with definite, "staying put" qualities, then we feel positive of the accuracy of the analysis we send the Chiropractor and patient can expect good continued service.

The following is a letter from patient's daughter written two years and three months after dismissal from the B. J. Palmer Chiropractic Clinic.

December 4, 1947.

"The B. J. Palmer Chiropractic Clinic,
Dr. L. W. Sherman, D.C., Ph.C.,
Davenport, Iowa.

Dear Dr. L. W. Sherman:

"I am writing this letter in behalf of my mother, Mrs. _____, to report on her case since being a patient at the Palmer Clinic, August, 1945.

"I am sure you'll still be interested to know of the wonderful improvement mother has made since then, for which, we as a family are very thankful and certainly thank God for such a wonderful science as Chiropractic.

"At the time mother entered the Clinic August 15, 1945, she had several kinds of ailments with which she was gradually getting worse.

"Twenty years before, or in 1925, she was operated on for a displaced uterus and also had a badly infected appendix removed at the same time. But the operation was of no success, she still continued to have very weak spells and severe pains in her abdominal region and down her legs. These even seemed worse after the operation. Her menstruation periods were difficult days to go through.

"Immediately after the operation mother began to have trouble with her bladder and also noticed she was growing lumps on her breasts, which continued to grow in size as years went on. The last few years before being a patient at the Clinic these lumps bothered her considerably. The constant pressure on her bladder made it difficult to pass her urine, at all times, and at times she wasn't able to pass her urine for more than a day.

"The summer of 1944, a local medical doctor advised mother to have an operation performed on her bladder and also on her uterus. It seemed evident at that time that she had small tumors in her uterus. The M.D. assured her that an operation would be necessary, otherwise it probably wouldn't be possible for her to

live through her change of life. Mother felt as though she couldn't give herself up for such an operation and only hoped some other means of relief could be found. In her past years of suffering she had been to a number of doctors of different kinds, but none seemed to be able to offer her much relief. It wasn't until after she was a patient of the B. J. Palmer Clinic that she started on a new lease of life.

"When mother entered the Clinic August, 1945, she was first examined by the medical doctor in the Clinic. He also told mother she had tumors in her uterus, and advised her to have an operation immediately after she returned home from the Clinic. But as you will remember you advised mother to wait for which she did. You explained to her after the pressure was released the tumors would stop growing.

"After her one and only adjustment at the clinic, mother had quite a bad reaction the first week. The second week she began to notice the pressure on her bladder was not quite so severe and was able to pass her urine a little more freely at times. We then returned home after being patients in the Clinic for two weeks. In about a month from the time mother was adjusted, the pressure on her bladder was completely gone. For the first time in twenty years, she was able to pass her urine without any difficulty at all. The lumps on her breasts were completely gone within four months time, although at this time she was still having quite a bit of pain in her abdomen and her legs, which was believed to be caused by a bad uterus. It wasn't until about six months after her adjustment, that these pains began to let up, and getting less as time went on.

"Her menstruation periods reappeared only three or four times after her adjustment. Well, to be exact she has been through with it since March, 1946. All in all, mother is feeling quite well and being on a farm, she has to do a lot of outside work, and works hard every day. She is able to sleep good at nights, whereas before she wasn't able to sleep well on account of her severe pains.

"I also want to mention that mother's one and only adjustment she received at the Clinic held good for five months. Then she was adjusted by Dr. _____, a Chiropractor at

_____, _____, to whom you referred us, after leaving the Clinic.

"We are all very happy and thankful for the remarkable progress mother has made. We always will recommend Chiropractic to anyone.

"If this letter is still of any value, you may use it any way you wish.

Sincerely,

MISS _____,
_____, _____."

CHAPTER 2

The Story Of

CROWDING THE HOUR

The Neurocalometer was introduced to the Chiropractic profession at Lyceum, 1924. At that time **THE HOUR HAS STRUCK** was delivered. Hour **HAD** arrived when Chiropractic must pass from a theory to a science; when Chiropractors must pass from posing as dogmatists to being scientists.

At Lyceum, 1931, **THE HOUR HAS ARRIVED** was presented. This was a symposium and review of conclusions of scientific research and work tabulated into articles, compiled into a book. (Reprinted in Vol. XXIV — Palmer, 1950.) Hour **HAD** arrived when scientific work was replacing theoretical work, and Chiropractors were learning, practicing, and accomplishing scientific work.

CROWDING THE HOUR is a continuation of scientific research work which took place during 1931-32. It was presented at Lyceum, 1932. It enlightens us on demonstrated proof of correctness of **SPECIFIC** work as applied in Chiropractic adjusting.

To **CROWD** the hour is to make time valuable — to concentrate each minute in greater human service.

“SPECIFIC” SYSTEM ANALYZED

A few years back, we were pronounced in our declaration that Chiropractors, as representatives of a separate, distinct, human-service, scientific profession, were doomed. It was reported and generally believed we stated that Chiropractic was doomed. Such is impossible, because truth, within itself, once revealed, established and proven cannot be destroyed. Chiropractic and what it **IS** cannot be changed in essence or dilution. Chiropractors were diluting service with multitudinous foreign elements which were rapidly disintegrating it into a bath-house massage, back-punching mixture. Instead of devotees keeping it independent of all else, its followers were making it dependent upon everything but itself.

Above statement was based upon several facts:

Chiropractic, AS A PRINCIPLE, was sane, sound, sensible.

Chiropractic, AS A PRACTICE, had been tried by Chiropractors and was found wanting in a large percentage of cases, varying as to competency of practitioner.

Chiropractic, AS A PRINCIPLE, was a sane, sound, sensible THEORY.

Chiropractic, AS A PRACTICE, was applied as practically as theorists could, with a theory.

Chiropractors, in their struggle to find and establish a sane, sound, sensible PRACTICE, were being weaned from the Chiropractic principle AND practice and were becoming illegal physicians and surgeons.

Chiropractors, in struggle to find themselves in this inequality of unbalance between principle and practice, were smothering present and future opportunities, educationally, legally, legislatively, and via State Boards.

To save themselves, commercially and financially, Chiropractors were advertising THE PRINCIPLE of CHIROPRACTIC because it was a good, sane, sound, sensible sales argument; and were practicing systems and methods of medicine, even to radionics, colonics, etc.

Average thinking, logical, reasoning Chiropractor was sold to truths and facts of Chiropractic PRINCIPLE; majority were gradually unselling themselves to truth and facts of Chiropractic PRACTICE.

TWO things could save this movement:

1. Let Chiropractors IN PRACTICE run full gauntlet of systems and methods of mixing medicine, until they realized and found there was less of good IN THEM than there was in Chiropractic practice, as limited as they found it.
2. LET SOME OF US BUCKLE INTO HARD THINKING, RESEARCHING, AND DEVELOPING THE SCIENTIFIC SIDE OF PRACTICE AND IMPROVING ADJUSTING ART OF CHIROPRACTIC TO WHERE IT REACHED HIGH VALUE OF PRINCIPLE OF CHIROPRACTIC.

In 1923, our profession as a group mind had reached the maximum of efficiency under THEORY method of practice.

In 1924, we began at minimum of efficiency under SCIENCE method of practice.

Since 1923, we have been climbing that ladder.

In 1924, a movement began scientifically researching for facts in practices:

—What percentage of cases WAS getting well?

—If we succeeded, why?

We took nothing for granted. We threw systems, methods on PRINCIPLE as well as PRACTICE — EVERYTHING — into the crucible to prove or disprove, knowing well if RIGHT it would stand tests and if WRONG it should go down. Quicker WE proved or disproved, sooner we SAVED OURSELVES and kept others from proving our position untenable.

We had TO KNOW. No man's word was relied upon. We threw THEORIES to winds. We demanded SCIENTIFIC facts.

In this evolution, much was discarded; much was proven; much was developed that was new; much was placed upon a new proven foundation; new conceptions and interpretations were brought forth.

No wonder Chiropractors found themselves in a whirl; found themselves unbalanced — not knowing what to save, what to throw away; doubted NEW work and questioned judgment and motives of him who reconstructed all; doubted value of anything new — and who could blame them unless they reasoned beyond surface appearances?

We presented NEW work. We gave REASONS. We offered SCIENTIFIC WORK WHICH COULD BE SCIENTIFICALLY PROVED.

Up to 1930, we would not discuss cases. Whatever happened was AN ACCIDENT. ACCIDENTS are not discussed by scientific minds. No one can account for results THAT HAPPEN by accident. They cannot be duplicated, with assurance, on a second case.

PRINCIPLE of Chiropractic was scientifically sound AS A THEORY. PRACTICE of Chiropractors was accidental, on cases.

Before 1930, we played with questionable methods of symptomatology, pathology, and diagnosis, to lead us to subluxations, adjustments, and understanding of whether our cases were getting better or worse.

Since 1930, we do not discuss cases. Nothing "happens". Subluxations are found **BY INTENTION AND DIRECTION**. Adjustments are given when, where, and how, **WITH SCIENTIFIC PRECISION AND KNOWLEDGE**. Sick get well **BY DESIGN**. Results are secured with **ACCURACY**. We confine research **TO SPINAL COLUMN** wherein lies **CAUSE** and behind which lies **CURE** of dis-ease, and completely ignore questionable methods of symptomatology, pathology, and diagnosis, to know whether case is getting better or worse.

We speak **NOW** with a record of 38 years with **THEORY** and 17 years with **SCIENCE** (1951) in practice; developing, producing, teaching thousands of **THEORIES** of how to make Chiropractic practical; developing, producing, and teaching **SCIENTIFIC** methods of how to make Chiropractic work; one simple **SCIENTIFIC FACT** accomplishing more health in worse cases quicker than many complexed, theoretical unproved hypotheses.

There is no conflict between **CHIROPRACTIC PRINCIPLE** as of 1895-1951, and **CHIROPRACTIC PRACTICE** as of 1935-1951. **CHIROPRACTIC PRACTICE** is in accord now. **CHIROPRACTIC PRINCIPLE** was that somewhere in each spinal column was a **VERTEBRAL SUBLUXATION** causing dis-ease. **CHIROPRACTIC PRACTICE** now **FINDS** that subluxation; locates it **EXACTLY**; adjusts it **WHEN** it is; **DOES NOT** adjust it when it is not; **KNOWS** how it is subluxated; secures health result quicker on worse cases. That is the **CHIROPRACTIC OBJECTIVE** in **CHIROPRACTIC PRACTICE**. There is no conflict between principle and practice today.

It is the desire of **EVERY** Chiropractor to duplicate character of results we attain here. To do so is to build a business on results, which means greater business quantities. To do so is to build **REPUTATION** which brings greater adjustment values. It **CAN** be done. It **IS** being done. It **IS** within realm of Chiropractic.

Chiropractor must know **EXACTLY** where vital and only subluxation is. He must not guess, presume, hope it is somewhere

in upper cervical. RIGHT one gets case WELL; WRONG one spells failure. He must know EXACTLY which direction vertebra is subluxated. He cannot guess, presume, hope it is this or that way. RIGHT direction gets case WELL; WRONG direction spells failure. ADJUSTMENT must be given at RIGHT place in RIGHT direction, according to where interference is. He cannot guess, presume, hope he is giving an adjustment at right place in right direction. Chiropractor must KNOW adjustment was an ADJUSTMENT; that it released pressure and restored transmission. He cannot guess, presume, hope — because he heard vertebra crack or felt it move — he has given an adjustment. If it IS an adjustment, case gets WELL! if it IS NOT, it spells failure. He must know he HAS NOT created a NEW interference or increased old interference. He cannot guess, presume, hope he has not done either. He must know EXACTLY when and where line and time have been established when and where OVER-ADJUSTING begins and makes case sick again. He cannot guess, presume, hope he can tell when that time arrives. If adjusted ONLY when needed, case gets WELL; if over-adjusted, it spells failure. If it requires ONE adjustment to get case well, that adjustment must have been given perfectly.

WHEN CHIROPRACTOR REACHES THAT STAGE OF HUMAN DEVELOPMENT WHERE HE CAN DUPLICATE HIS WORK, HE IS A CHIROPRACTOR WORTHY OF THE CHIROPRACTIC PRINCIPLE AND PRACTICE.

That Chiropractic is international is obvious; that backbones are alike is known; that there is a method, means, and system that works universally is proven. The SPECIFIC system of practice is as serviceable in Europe, Australia, as in America or Canada. No longer is it a question of any man's theory, belief, hope, or aspiration. There is now a working scientific principle balanced by a working scientific practice which EVERY Chiropractor in the world is welcome to. In exact ratio as field adopts and proves SPECIFIC principle and practice sound, to that same extent will Chiropractic grow until it becomes greatest human health service in the world. Many a Chiropractor has failed because HE couldn't make the Chiropractic THEORY work. Many a Chiropractor today is succeeding because HE IS making the Chiropractic PRACTICE succeed.

Way back when, we would palpate bumps, irregularities, hills and valleys; hunt tender nerves, taut fibres, muscular contractures; declare each was indication and proof of vertebral subluxation close by; and adjust each and all, every day. "As long as case was sick, subluxation existed." "As long as subluxation existed, case was sick." "As long as we could palpate any bump, irregularity, hill, or valley; find tender nerves, taut fibres, or muscular contractures — IT WAS A SUBLUXATION." Case would stay six months or six years — as long as we could hold him, arguing philosophy, until he got discouraged or we got disgusted. If case got well, IT WAS AN ACCIDENT we could not repeat.

In 1935, we began to definitely set our minds to determine ways and means; to study, research, locate, and to know WHERE, WHEN, HOW NERVE PRESSURE INTERFERENCE TO TRANSMISSION EXISTED.

At first we would read cases, adjust, check, and be glad pressure was gone — even if only for a short time. Next day we would read and find all back; adjust; check again; keeping this up with hope case would get well. A large percentage did. We were headed into knowledge of facts.

Observation, study, research, deduced knowledge, gradually reduced number of places to adjust; gradually reduced necessity for number of places to be adjusted; gradually reduced days on which adjustment was necessary. A larger percentage got well in shorter time; worse cases got well. We began to lengthen time between adjustments.

In 1910, we had an international Press Clipping Bureau send us clippings about accidents causing disease and accidents curing disease. We thot it would be occasional. We were after such as:

"Riding horseback; hit head against low-hanging branch; became sick, and died."

"Walking along street; brick fell on head; picked up paralyzed."

"Slap on back; went blind."

"Paralyzed man — tripped at top of stairs, fell down; laid out unconscious; woke up and walked off normally."

"Slipped on sidewalk; hit head; sight restored."

We received thousands of such clippings per month from every state in the Union and every Province of Canada. Quantity of them, and distribution, told us that while reported as "accidents" and were accidents in fact, behind ALL was A LAW at work, following a definite principle and practice. SOME DAY WE WOULD KNOW THAT LAW AND INTELLIGENTLY AND INTENTIONALLY APPLY IT WITH FACILITY EQUAL TO BRANCH OF TREE, SLAP ON BACK, TRIP ON STAIRS, SLIP ON SIDEWALK, FALLING BRICK; some day we would apply THAT LAW in every principle and practice — not sometimes, but always.

TODAY we KNOW THAT LAW. TODAY we UNDERSTAND ITS PRINCIPLES AND PRACTICES. TODAY we can, do, and know when, where, and how to do CONSTRUCTIVELY what branch of tree, slap on back, trip on stairs, slip on sidewalk, or falling brick did destructively.

The brick can be efficient in getting sick people well if it happens to produce concussion right place, at right time, in right direction. If it happens to hit wrong place, wrong direction, it can make a person sick equally as fast. Falling brick proves what a falling brick concussion can do, in either production or reduction of subluxation; creating sickness or restoring health. With brick it is an accident either way. It may land right or it may land wrong. Whether person gets sick or well depends upon whether brick concussion lands right or wrong.

Difference between Chiropractor and brick is that Chiropractor SHOULD have brains to know where, how, and when to produce concussion to adjust right every time and restore health as efficiently as brick, when brick concussion does it right. How often have Chiropractors done as well as the brick when the brick did it right? How often have Chiropractors created disease as well as the brick when brick did it wrong?

We want to understand law of falling brick, to teach that law and deliver Chiropractic as efficiently as brick when it falls right — one place, once, case well.

Branch, brick, or slap did NOT CAUSE; neither did trip on stairs or slip on sidewalk CURE. There was A PRINCIPLE AND PRACTICE at work WHICH WORKED in affirming or denying a LAW which CAUSED dis-ease AT ONCE or CURED dis-ease

AT ONCE. If that law worked in CAUSING dis-ease BY ACCIDENT; if that law worked in CURING dis-ease BY ACCIDENT, it could be made to work BY INTENTION, if we knew the law. If we know that law — when, where, and how it works; understand the principle and practice; and can apply it, we can do as well as any brick, slip, or trip.

Instead of these cases happening occasionally, we were flooded with clippings from the United States. We began researching TO FIND THAT LAW, TO ANALYZE THAT PRINCIPLE, TO APPLY THAT PRACTICE. We will not rest content until the day when we can do as well or better than a brick, slap on back, or trip on stairs.

The great problem is that average Chiropractor wants to ADD what he thinks should be added, or SUBTRACT what he thinks should be subtracted from the SPECIFIC system. He wants to add other principles or practices THAN CHIROPRACTIC, for psychological, economical, or other reasons, to make the SPECIFIC work better.

We made the statement in 1930, and we make it again:

IF CHIROPRACTORS DO WHAT WE DO, AS WE DO IT, THEY CAN GET RESULTS WE DO.

SPECIFIC system is like a chemical equation with sixteen elements:

- if quantity of any one or more elements is changed;
 - if quality of any one or more elements is changed;
 - if they are unbalanced in sequence;
 - if any one is substituted for any other — ENTIRE CONCLUSION CHANGES.
-

HOW AND WHY CHIROPRACTIC METHODS AND MEN BECOME CHIROPRACTICALLY OBSOLETE

In 1895, D. D. Palmer laid down a NEW principle which was complete within its concepts, to apply itself to all conditions, types, and cases. The PRINCIPLE was 100 per cent complete.

PRINCIPLES, within themselves, are mental declarations. They could and might be 100 per cent correct in deduction and

be 100 per cent wrong in application. Reason may exhibit soundness, but when turned to use, it could fail or succeed for want of or presence of practicability.

One favorite definition of this principle, and one which tells most and says least to a majority, is:

"Chiropractic is a philosophy, science, and art of things natural; a system of adjusting subluxated segments of spinal column by hand only for correction of cause of dis-ease."

It is a PHILOSOPHY because it explains internal "natural" answers to "why." It is a SCIENCE because it lays down internal "natural" explanation of "how." It is an ART because it does the internal "natural" way. It is "of things NATURAL" because medicine is a study of pathologies, diseases, abnormalities, unnatural and destructive conditions; whereas, CHIROPRACTIC studies health, life, normal constructive conditions. It confines itself to a SYSTEM of adjusting one area only—spinal column—by hand only—to correct CAUSE, in contradistinction to medicine which TREATS EFFECTS.

To be practical, PRINCIPLES demand practice. Principles can be born correctly. PRACTICES may take years of experimentation to reach efficiency of principle.

CHIROPRACTIC PRINCIPLE laid down by D. D. Palmer in 1895 was, in brief:

—Vertebrae of spinal column could be subluxated.

—A subluxation was less than a luxation, and was less than a dislocation.

—Subluxations occurred in everybody, more or less, in varying degrees.

—Subluxation occluded intervertebral or spinal foramina.

—This occluded opening decreased its size, shape, and circumference.

—This decreased opening produced pressure upon nerves.

—Pressure upon nerves interfered with transmission of normal quantity flow of nerve force.

—This lack of normal quantity flow of nerve force became THE cause of EVERY dis-ease in human body.

If these theoretical elements constituted physical, provable FACTS, principle was designed to cover 100 per cent of dis-ease,

allowing no exception. From 1895 to 1951, nothing has been added to or subtracted from that principle. No worker with that principle has found a necessity for more or less than what is contained within itself.

EFFICIENCY OF PRINCIPLE VS. INEFFICIENCY OF PRACTICE

What can be said about carrying out this principle IN PRACTICE? Has it been found complete? Is there necessity for adding to or subtracting from this principle? Has its application ALWAYS worked 100 per cent on ALL cases? Have workers with this principle in practice been at all times satisfied? Have their experiences with cases proved in practice that principle is sound?

Answers are found in a cursory cross-section analysis of Chiropractic profession, regardless of state, province, or country. There are Chiropractors who confine their work to Chiropractic, giving nothing but adjustments. They are in minority. Another group uses everything from methods of growing hair on bald heads to correcting feet, by a multitude of means too numerable to cite. They are in majority. One of two reasons exists for this contrasting complexity. First group are studying and endeavoring to perfect themselves in knowing and applying philosophy, science, and art of Chiropractic. Second group prefer to know understanding and application of principles and practices belonging to other professions, regarding themselves as a profession where economic pressure prejudices scientific deductions vs. an improved service.

In the beginning, Chiropractic practice was far short of Chiropractic principle. Weaving in and out and thru entire warp and woof of Chiropractic history have been various ups and downs of methods, means, systems, techniques, and ways of trying to bring low standard of practice up to high standard of principle. At times we developed ways and means that took us ahead; occasionally we took serious slips backward; sometimes methods were born which were a detriment and hindrance and hurt temporary growth of practice to achieve its end. Other systems were developed that possessed great merit. Between slipping backward and growing forward, slipping easier than growing, STEADY

MOVEMENT HAS BEEN UPWARD, gradually attaining vital desire — to some day definitely, specifically, and scientifically KNOW WHERE interference to transmission was; WHERE subluxation existed; WHEN to give an adjustment; HOW to give it; WHEN to stop adjusting — for in these lay the secret of ultimately bringing up the practice to efficiency of principle. Is that point reached now? We think so, with views today. Much lies ahead; just as much lies behind; more will be developed that is more useful in the future.

How much has been accomplished, or how much ground has been lost during transitions, can be ascertained by looking backward and seeing what happened by analysis of work that has been done.

HOW ALL BEGAN

Harvey Lillard was first patient to get a "spinal treatment." It was AN ACCIDENT that place was found and that he got well. Accident was an adjustment, not treatment, because it released pressures. From that "accident" began ferreting much unknown, in practice, to make that principle work.

Being a NEW principle, everything connected with practice was NEW. There was no precedent, no forerunner, nothing established upon which to reason, hypothesize, or start. It had to be hewn out of raw material.

Somewhere, hidden in that human living backbone, a theoretical principle was held forth; cause and cure of ALL disease of the human race was buried. Maybe none was true; maybe it was all true; maybe it was partly true; maybe it fit into some cases and not others — all was conjecture, nothing was known to definitely exist in PRACTICE. We had to scratch out and work a verification of the principle or a complete denial of it.

There existed much that was medical, in principle and practice. Was any of it available for OUR purpose? Was any sound? Were its principles of stimulation, inhibition, and operation practical to OUR use? Were THEIR explanations of causes of disease applicable to an elucidation of OUR principle? Were THEIR avenues of approach the road for US to tread? If we began proving OUR PRINCIPLE with THEIR PRACTICE, would we prove OUR principle?

DEVELOPMENT BEGINS

Many ideas and methods were deduced in approaching attempts to solve this backbone cause and cure practice of disease. We list a few, explain what they were, how they were designed to fit into practice; how we gradually outgrew some; how we dropped much old and advanced with new; and how movement grew from nothing:

1. Laboratorial findings and inductions vs. clinical findings and deductions.
2. Missing link of force, matter, and time.
3. Cycles.
4. Division of complete body into Educated and Innate brains, bodies, mind, and functions.
5. Cellular expansion rather than cellular division.
6. Families and species.
7. Nine primary functions; placing normal and abnormal function on a quantity rather than quality basis.
8. Meric system; structures in each mere.
9. Law of invasion and resistance in causation and correction of subluxations.
10. Retracing.
11. Repletion and depletion of tissue structure. Atrophy and degeneration.
12. Serous circulation. Dry and wet man dis-eases.
13. Chiropractic dieting.
14. Chiropractic hygiene.
15. Germs are not the cause of dis-ease.
16. Paradoxes.
17. Excess function.
18. Law of intellectual adaptation.
19. Principle of mental impulse restoration.
20. Are diseases inherited, or even a tendency?
21. Equations.
22. Direct brain-cell-to-tissue-cell fibre system.
23. Chiropractic veterinarians.
24. Law of demand and supply.

25. Direct function flow from brain to body; an anti-"sympathetic" nervous system.
26. Palpation.
27. Nerve tracing.
28. Taut and tender fibres.
29. How poisons cause dis-ease.
30. Superior and inferior meric systems.
31. Majors and minors.
32. Cord pressures.
33. Cord tensions.
34. Chiropractic analysis.
35. Spinograph.
36. Recoil adjustment.
37. Toggle-recoil adjustment.
38. Knee-chest posture.
39. Hot box.
40. Neurocalometer.
41. Innate recoil adjustment.
42. Adjustment with "that extra something", having staying-put value.
43. Momentum.
44. Accumulative constructive and destructive survival value.
45. Research proved that all vertebrae below axis were interosseously-locked from all directions, posterior, anterior, left or right. The ONLY place such did NOT exist was from superior of axis, inferior of atlas, superior of atlas and inferior of occiput — occipito-atlantal-axial area. ONLY place a vertebral subluxation COULD exist, with its four necessary elements, was in this superior area. Anything below that was a misalignment. ONLY place an ADJUSTMENT could be given was where a SUBLUXATION was, viz., in occipito-atlantal-axial area.
46. We built the only nine-channel electroencephaloneuromentimpograph in world, measuring, calibrating, and evaluating quantity of mental impulse nerve force flow between Innate in brain and function in body, producing nine simultaneous graph wave patterns at, in, and between Innate and function, brain and body.

47. Electroencephaloneuromentimpograph proved locations and degree of interference between function manufactured in brain and what was expressed in body, testing any and all adjustments before and after to see whether what was done, where it was done, in manner it was done, did or did not restore mental impulse health supply to sick bodies.

48. In 1935, we began accumulation of apparatus and equipment for a one million dollar private research clinic, staffed with both medical and Chiropractic data to test all theories and techniques on actual problem cases, to prove or disprove any or all — ours as well as others; to prove or disprove any or all so far as they apply to fundamental Chiropractic principle as to whether they did or did not increase or decrease normal quantity flow of Innate mental impulse to function between brain and body and viscera or organs. We now have a clinic staff of thirty-two scientifically trained expert technicians to accumulate endless records on electrically, automatically, and mechanically graphed patterns of all observations, trusting nothing to memory of man.

49. In 1949, we established a research staff of five — sometimes as many as eleven — statistical experts to take our thousands of case records with their voluminous files, and break them down into research bulletins in each individual phase of our case histories, to prove whether what we were doing, as we were doing it, at places we did it, in way we did it, was right or wrong. To date we have issued four such reports:

Hematological Bulletin

Urological Bulletin

Basal Metabolism Bulletin

Toxic Drug Reactions Bulletin

More will follow as time ensues.

(See full list in rear of this book.)

50. As a result of exhausting research and tests made to prove or disprove our method of approach to getting sick people well, we came out with **THE SUBLUXATION SPECIFIC, THE ADJUSTMENT SPECIFIC**, (Vol. XVIII — Palmer, 1934.)

51. In 1949, we issued a report on **FOUR CONSTANTS AND FOUR VARIABLES** of the **ONLY** possible subluxations causing all dis-ease. (See Vol. XXIII — Palmer, 1950.)

52. Comparison of two systems—one ancient, one modern.

Space forbids detailing other interpretations, methods, means, and systems.

These interpretations, methods, means, and systems were anatomical, physiological, symptomatological, pathological, philosophical, chemical, and mechanical, eventually hoping to solve problem of where to adjust, why, and how, to get sick well.

We give a short explanation of what ground each covered, how applied; how it served in its time to help solve practice problem; how each gave way to newer and better means to accomplish same objective; and how it became obsolete or retained some value in application—for all ideas are retained if of value, or replaced by something better and more practical.

1. Laboratorial premise is par excellence—microscope and test tube; methods and means used in physics and chemistry. These had found “cause” of disease in germ or other external environment. But sickness lived on, even in greater per cent than the per cent growth of human family. Chiropractic avenue to same problem was the clinic; direct study of case itself; to seek cause *WITHIN*, cure *WITHIN*—not outside. This brought about a careful scrutiny of cases rather than germs and chemistry. By scrutiny of cases, we were able to learn much that had heretofore been ignored. We affirm every laboratorial *FINDING*. We deny none. We deny every laboratorial *CONCLUSION*. They affirm none, and deny every clinical finding we made, and question every clinical conclusion reached. Example: Medical *LABORATORY* found the germ. Conclusion is, germ caused disease. Chiropractic clinic found vertebral subluxation. Conclusion is, interference to transmission caused disease, germ being a sequence.

2. Medically speaking, all was matter—physics, and chemistry. All was material either in disease or its cure. Chiropractic observation of clinical cases set forth three elements were essential: force, matter, and time—introducing one element which, while not new, was new in application: force, which was construed by Chiropractor as intellectual Innate Intelligence. This study is still of fullest value, and time has not decreased or changed it.

Inasmuch as it sets forth the fundamental method of difference, we shall enlarge upon its premises:

1. — Major Premise.

A Universal Intelligence is in all matter and continually gives to it all its properties and actions, thus maintaining it in existence.

2. — Chiropractic Meaning of Life.

Expression of intelligence thru matter is Chiropractic meaning of life.

3. — Union of Intelligence and Matter.

Life is necessarily the union of intelligence and matter.

4. — Life is a triunity having three necessary united factors: intelligence, force, and matter.

5. — The Perfection of the Triune.

To have 100 per cent Life, there must be 100 per cent Intelligence, 100 per cent Force, 100 per cent Matter.

6. — The Principle of Time.

There is no process that does not require time.

7. —

The amount of intelligence for any given amount of matter is 100 per cent, and is always proportional to its requirements.

8. —

Function of intelligence is to create force.

9. —

Amount of force created by intelligence is always 100 per cent.

10. —

Function of force is to unite intelligence and matter.

11. — Character of Universal Forces.

Forces of Universal Intelligence are manifested by physical laws; are unswerving and unadapted, and have no solicitude for structures in which they work.

12. —

There can be interference with transmission of universal forces.

13. —

Function of matter is to express force.

14. — Universal Life.

Force is manifested by motion in matter; all matter has motion, therefore there is universal life in all matter.

15. — No Motion Without Effort of Force.

Matter can have no motion without application of force by intelligence.

16. —

Universal Intelligence gives force to both organic and inorganic matter.

17. —

Every effect has a cause and every cause has effects.

18. — Evidence of Life.

Signs of life are evidence of intelligence of life.

19. — Organic Matter.

Material of body of a "living thing" is organized matter.

20. — Innate Intelligence.

A "living thing" has an inborn intelligence within its body, called Innate Intelligence.

21. —

Mission of Innate Intelligence is to maintain material of body of a "living thing" in active organization.

22. — Amount of Innate Intelligence.

There is 100 per cent of Innate Intelligence in every "living thing," requisite amount, proportional to its organization.

23. —

Function of Innate Intelligence is to adapt universal forces and matter for use in the body, so all parts of body will have co-ordinated action for mutual benefit.

24. — Limits of Adaptation.

Innate Intelligence adapts forces and matter for body as long as it can do so without breaking a universal law, or Innate Intelligence is limited by limitations of matter.

25. — Character of Innate Forces.

Forces of Innate Intelligence never injure or destroy structures in which they work.

26. — Comparison of Universal and Innate Forces.

To carry on universal cycle of life, universal and innate forces are constructive, as regards structural matter.

27. — Normality of Innate Intelligence.

Innate Intelligence is always normal and its function is always normal.

28. — Conductors of Innate Forces.

Forces of Innate Intelligence operate thru or over nervous system in animal bodies.

29. — Interference with Transmission of Innate Forces.

There can be interference with transmission of innate forces.

30. — Cause of Dis-ease.

Interference with transmission of innate forces causes incoordination of dis-ease.

31. — Subluxations.

Interference with transmission in body is always directly or indirectly due to subluxations in spinal column.

32. — Principle of Coordination.

Coordination is the principle of harmonious action of all parts of an organism, in fulfilling their offices and purposes.

33. —

Law of demand and supply is existent in body in its ideal state; wherein "clearing house" is brain, innate virtuous "banker," brain cells "clerks," and nerve cells "messengers."

34. "Cycles" was a study of efferent and afferent paths of flow of intellectual mental impulse supply from brain to body and body to brain. Successive steps of transformations, both intellectual and physical, were set forth. This study is still of full value and time has not decreased or changed it.

35. At birth, we are born with one completed intellectuality, which takes possession of all functions of the body and performs them as well at birth till death. To this personality was given name INNATE INTELLIGENCE. At birth, we are also born with a blank brain, which will receive, assemble, correlate, and systematize its interpretations which, as it steps up in years, and in accumulation of understanding, will be EDUCATED INTEL-

LIGENCE. Each has a segregated duty to perform and a portion of body in which it can and does act, one independent of and the other semi-independent of other. Thus one totality body became segregated into two sectional bodies, each under its own mind. This study is still of full value and time has not decreased or changed it.

36. We are told, as a result of laboratorical study, that the body is conceived, developed, and lives by a physiological cellular division. From one come two, and from one can come a world; that something can and does come from nothing. In substitution, Chiropractically, we saw a human race reproducing themselves by building minute compilations of themselves, each in its place depositing its elements, which, under favorable conditions, EXPANDED into a new being composed of elements manufactured by parentage. Male sperm and female ovum being nucleated, minute, composite elements from which child would expand matured. This study is still of value and time has not decreased or changed it.

Medical studies of symptomatology and pathology leading to diagnosis, were conglomerate, without head or tail; complexed beyond ken of human fathoming. It was guesswork, patchwork, and hope to hit whatever it was. Authorities are pronounced on inability of any person to reach any conclusion with any reasonable minority degree of success upon present assumptions. Diagnosis is a classification of effects. Analysis is a classification of causes. Chiropractic solution of this problem was to observe and delegate all disease into families and species. It was easily done when analysis was tabulated. This study is still of fullest value and time has not decreased or changed it.

37. To further pursue explanation, everything was deducted into nine primary functions. Study of disease was placed on QUANTITY basis, rather than quality. Symptomatology, pathology, and diagnosis almost entirely lean to QUALITY of sense and function, of observed and observer. Complications ensue. No wonder physicians dispute and differ. Dis-ease was analyzed to be either plus or minus of one or several of nine primary functions. There could be but TWO dis-eases — plus or minus of one or more nine primary functions. Fever was calorific function plus. No matter what name given to thousands of QUALI-

TIES, it was but two IN QUANTITY. There could be thousands of qualities, but TWO quantities. This simplified dis-ease. It was placed on an equational basis. This study is still of value and time has not decreased or changed it.

38. Meric system was an elaboration. Nerves had origination in a certain section of brain, left there and had definite downward path thru spinal cord, and proceeded to predetermined place in body to supply function to. Study of body, therefore, took on a sectional divisional character. Builded upon a definite plan, which rarely varied, it was possible to set up a complete chart of neurological distribution of nerves and functions they conveyed. Each vertebra was in a section; each section had certain organs. Each division was a mere, zone, therefore a meric system.

When inferior meric system was taught, we believed Chiropractically that exit of nerves from between two vertebrae, thru respective intervertebral foramen, was determining factor in locating THE subluxation creating disease. Example: Sixth dorsal was Stomach Place because exit of nerves on left side went to stomach; nerves on right side went to throat, thyroid, etc. It was believed if an individual had any disease in stomach, throat, thyroid glands, etc., PLACE for adjustment was SIXTH DORSAL. This study, as a practical working factor, has split two ways. It still is of fullest value as correctness of location of distribution of nerves, but it no longer is regarded as possessing ANY merit in locating THE subluxation that might be actually interfering with flow of mental impulses going to any organ within its zone or mere. AS A NEUROLOGICAL FACTOR, IT IS SOUND; AS AN ADJUSTING FACTOR, IT IS OBSOLETE.

39. Subluxation is CAUSE, a reversal of which CAUSE will correct. Analysis showed two forces in opposition, one of which overcame other. External was invasive force; internal was resistive. If external caught internal off guard, even the equal in value, external caused subluxation. If external was greater than internal, even tho internal was on guard, subluxation would result. If internal was relaxed, even tho external was below internal normal, subluxation would result. When conditions which produce subluxations were known, it was easy for Chiropractor to apply same rule of concussion of forces and reduce same,

thereby correcting its abnormal position. This study is still of fullest value and time HAS increased an understanding of same, INTENSIFIED application, and IMPROVED net result in making it easier to more permanently correct and maintain that correct position of a vertebra.

40. Retracing was result of observation of what happens to symptoms and pathology when adjustments are given. They ungrow following adjustment as they grew before with subluxation. In former days, much was called "retracing" which was result of adjustments given at wrong places, at wrong times, when they should not have been given. We created a new phase of dis-ease and because it was new observation, was called "retracing." Under modern adjustment methods, retracing is real, genuine, of short duration, but observable. This study, as a working principle, is still sound but has changed to meet true facts rather than supposed conditions often artificially produced as result of wrong work done by Chiropractor.

Physiologically, when tissue lost its natural form and shape, such as is found in anemia, paralysis, etc., it was medically given a blanket explanation of "Wallerian degeneration". Obviously, if tissue were degenerated, no force could ever restore it. Chiropractic gave explanation of "depletion" and under adjustment it was "repleted." If a small withered arm was degenerated, no amount of adjustment could bring it back to normal size, shape, and use; but, if depleted, it could be repleted as soon as normal functional activity returned and time rebuilt it back. This study is still of full value and time has not decreased or changed it.

41. Two fields of medical diagnosis have always been dark secrets: "nervous" diseases and those of internal secretions. Neurotic diseases are beclouded with more misnomers than any other, because medicine refuses to acknowledge abstract nerve force energy as a factor, and because they insist upon all diseases being entities in physics and chemistry upon a materialistic basis. Beyond that, and even greater than that field, is that mysterious field of unbalanced chemistry involving glandular secretions and excretions. It became our work to research this problem coming forth with announcement of SEROUS CIRCULATION of fluids other than any other in body, independent of blood, etc. This circulation passes efferently and afferently from intestines at

beginning to kidneys at ending, meanwhile passing thru an inter-cellular and intracellular canalicular system, out of which come all autointoxication diseases, plus various and multiple chemical unbalances which create many diseases for which prescriptions are given in an attempt to create a balanced chemical condition called health. Practical applications of this study are dry and wet conditions of skin, tissues, and other organs of body. This study is still of full value and time has not decreased or changed it.

42. Medical dieting is a question of weakening down foods to a weak digestive system so that weak digestive system is not called upon to do more work on weak foods than it can digest. Chiropractic dieting is reverse — it strengthens digestive system to where it is strong enough to digest common food that anybody is called upon to digest. Dieting is what its name indicates — die-it — for, by reducing foods to sick body you eventually starve body; sick body gets weaker and foods are reduced to weaker foods until patient dies to be cured of indigestion. Chiropractor permits patient to eat anything he wants, as much as he desires, so long as it tastes good; then gives adjustment to build up body to take care of food when it arrives. This study is still of full value, and time has not decreased or changed it.

43. Generally speaking, hygiene has a more or less fixed meaning of external soap and water and internal flushing out of refuses and dirt. Chiropractic hygiene has taken on a broader and more natural meaning, viz., a healthy body will be a clean body. Give structures proper mental impulse energy and they will be clean because dirt cannot gather or lie dormant or active in hidden creases when none such exist. That body which is healthy will be clean, and health and hygiene are synonymous when they come from within. This study is still of full value, and time has not decreased or changed it.

44. Notwithstanding general belief that germs cause disease, in ways and with means never explained satisfactorily to any sincere investigating mind upon premises which withstand scrutiny, yet a medical system exists around theory of antidotes, vaccines, etc. Contrary to all rules of "nature," as "nature" exists, germs are said to be cause of a vast majority of diseases today. This is a modern fad. It will fade as previous fads have done. One essential rule of natural life is: given scavenger mat-

ter, there will you find its characteristic scavenger to eat refuse. Rat does not cause garbage in swill-bucket; but where there is garbage in swill-bucket, there will you find the rat. First garbage, then scavenger. Germs are janitors to keep our dirty hallways clean. Without germs, nothing could live. It is germ life in milk that makes it healthful. Pasteurize it, and you kill it. Raw milk is healthful milk. Germs have never caused disease. Chiropractic lays down the principle that: produce a subluxation, reduce life force, and you weaken tissue structure; produce and breed scavenger matter, thence comes the scavenger; adjust subluxation, build up resistance in tissue, and you strengthen tissue structure; then there will be no scavenger matter, and health is result. Germ disappears.

45. "Epidemic" dis-eases are based on TWO conditions creating a third; each separate by itself, yet uniting of two separate elements creates a third. One is internal, second external. When external enters internal, we have third — an eruptive fever.

"Epidemic" dis-eases are based on some one or more organic glandular chemical unbalances, internally. This can be dormant or active, altho an internal condition. Being present and dormant, patient is sick. "Epidemic" dis-eases are based on one or more environmental (water, air, or food) effluvia or other elements which, entering body, become a poison to that body where united with primary glandular chemical unbalance existing. These two create third, known generally as "eruptive fever." Neither one by itself will create "epidemic." Two together create third condition. In any population there is a percentage who have a common chemical unbalance. To THAT percentage will come "eruptive fever" IF second element is present.

Dis-ease does not "spread." It exists in a percentage by virtue of dual existing elements. That is why MAJORITY of all population "escapes" "epidemic." Either they have not first element internally, or second element does not exist externally; or, if first does exist, they have not come in contact with second; or, if second does exist externally, then they have not first internally.

This study is still of full value, and time has not decreased or changed its value.

46. Paradoxically, paradox is found on different side. It is believed that in order to solve any problem, human or otherwise,

philosophical reason WHY must first be ferreted out of chaos. Scientific reason HOW follows in sequence. Then follows DOING the thing according to plan completed. Paradox is true. Men DO solve problems by DOING THEM, originally by accident; then follows tedious night hours, trying to explain HOW; last, they are able to tell WHY it was done.

47. Many symptoms and pathologies apparently represent increased function. If Chiropractic working principle were sound, this could not be. Innate Intelligence has a given *normal* quantity of intellectual energy ready at all times to supply all parts of body with requisite function, but no more. How, then, account for fever, diabetes, shaking palsy, and many conditions which indicate EXCESS of function? Simple. There is an excess one place only when there is a minus some other place. Mountains are because of valleys. Level off mountains, and you fill valleys and have plains. Cold feet go with hot heads; fevers are preceded by chills and followed by sweats. There can be an excess only when matter, function, and time elements have been unbalanced.

48. A subluxation occurs; inflammatory processes set up in centrum of vertebra. We soon have NCR condition. Weight-sustaining qualities of this vertebra are impossible. Now comes law of intellectual adaptation — Innate Intelligence begins to expand, from reserve osseous tissue cell centers near by, new osseous tissue cells. They are directed as to deposition of mental impulses at work. They are placed around rims of superior and inferior vertebrae, one spreading outward and downward, other outward and upward. Eventually, osseous exostotic and ankylotic bridge has been constructed across, and weight-sustaining qualities of spinal column are again at work.

Not desiring ankylosis with no free motion, knowing it is natural adaptation to pathological condition, Chiropractor locates THE subluxation which was THE cause of primary conditions, adjusts it, and mental impulse healthy flow occurs. Now enters again law of intellectual adaptation — Innate Intelligence, realizing health is being restored to otherwise diseased parts, seeing less necessity for osseous bridge, begins to denude area, reabsorb osseous cells; tears them down from where not needed and takes them to where they are needed. Given time, vertebrae

are healthy, filled out, exostosis and ankylosis are gone. Law of intellectual adaptation is at work in all parts of body — well or sick, with or without adjustments. It is this understanding which helps Chiropractor to know why people get well under adjustment. This study is of even greater value today than before. Modern work has proven its adaptability because of more complete ability to flow and work than before.

49. In approaching disease, to aid sick, medical man aims to give relief, abate, alleviate, cure. His treatment consists in STIMULATING fagged functional inactivity, as to whip up a slow-beating heart or to INHIBIT a fast-beating heart; to paralyze a diarrhoea or to stimulate a constipation. He whips up or slows down, and aims to "relieve, abate, alleviate" condition. Farmer "cures" hay and hams by drying or pickling them. Physician "cures" dis-ease by stimulation or inhibition to symptoms or pathology. Chiropractor does none of these. Dis-ease is an abnormal condition of motion, existing because of lack of energy which creates functional inactivity motion. To adjust subluxation, recreate normal foramen, release pressure upon nerves, is to RESTORE transmission of life force between brain and body. Mental force comes DOWN to point of obstruction. It does not get THRU point of obstruction. It is found wanting BELOW obstruction. Giving adjustment, lifting obstruction, he makes it possible for RESTORATION of flow to take place BELOW obstruction of force that was present ABOVE obstruction. Chiropractor does not stimulate or inhibit any dis-ease found at distal ends of any nerve.

50. As ideas developed, we ran into the seemingly established medical idea such as: "If diseases are caused by subluxations, interfering with flow from WITHIN, how do you account for so many diseases being inherited or where families have a 'tendency' to certain diseases?" Fundamentally, if cause is within, is produced within unit per se, then it cannot be something that can be handed down by parents. If cause is in parent, obviously it is not in child. Chiropractor can find vertebral subluxation IN sick person, adjust it, get him well, without reference to parent, regardless of whether living or dead. If cause and cure are in sick person, then that sickness was not handed down by parentage. Disease is one of two things: DISEASE or DIS-EASE. Medically, DISEASE is an entity, a physical and material thing that

can be tested or proven in physical tests. Chiropractically, DIS-EASE is not-at-ease condition in which matter finds itself. Medically, muscles are paralyzed, secretions are congested, heart beats too rapidly, etc. Chiropractically, it is questionable whether any of this is true. We look at a "congested" street corner; traffic is congested, automobiles are stalled. NOTHING is wrong with ANY automobile — power that moves is absent. Give every automobile auto-motion and no "congestion" or "paralysis" would exist. Medical men, not finding ANY cause IN individual, look outside for ALL cause. It is either water, air, environment, meat, milk, sewers, or parents; they seek until they reach impassable barrier, and are dumbfounded. As Chiropractic has aged and more sick have secured health, including these so-called "inherited" diseases, truth of this fact has increased itself many-fold. THE SPECIFIC has taken worse cases and gotten them well quicker, which verifies the Chiropractic contention.

51. We mentioned families and species. As a result of plus or minus of function, creating combinations of dis-eases, we established a new terminology to express quantity feature. All chemistry rests upon naming elements and giving number of its elements in comparison with others — such as H_2O , meaning two parts of hydrogen to one of oxygen, indicating quantity. So did we establish QUANTITY feature in our elements expressed to recognize dis-ease. "C plus" is always a fever — "C" indicating calorific function. "N-C plus R" indicates a degenerative process of tissue, regardless of whether tuberculosis, scrofula, cancer, ulcers, lupus, etc. One equation covering quantity expression blankets more than one thousand diagnostic terms which cover qualitative understanding.

Equations are still used by Chiropractors. They have lost much of former need. They used equations with a clearer understanding of dis-ease, believing that QUANTITY of function was more easily deciphered than quality of symptoms and pathologies, so they could more accurately locate organ involved. Having located organ, nerve was easily known by mere or zone; entrance into spinal column was a known location. Equational system is still sound. It is more accurate and better than any diagnostic method we know. As a means of trailing back to the back to help hunt and locate subluxation itself, that has been replaced

by use of better and more accurate means. Example: Case complained of indigestion. Upon inquiry, we find COLD water feels good in stomach. This is C plus stomach.

52. If Innate Intelligence lives in one portion of brain in skull, and Innate was compelled to express itself in tissue cell located somewhere outside skull, in body, then there had to be some connection between the two to transmit it from one place to other. Medical anatomies told us we had a complicated, complexed ganglionic system consisting of 127 brains, each of which was independent of all others, scattered all over body, none remotely hooked with brain in skull, each master unto itself, each doing what it pleased when it pleased; that the "master mind" over all was "sympathy" and that meant "by means unknown." This explanation of what happened and how did not meet comprehension of the Chiropractic principle that Innate intellectuality controlled all function. We substituted for this bungling understanding of mental functional man, a direct brain-cell-to-tissue-cell fibre system. Every brain cell has prolongation from itself which carried down into spinal cord, thru spinal cord, passed out from spinal cord thru intervertebral foramina, passed thru tissues until it finally reached organ and cell for which it was brain's counterpart. ALL the brain was connected with ALL the body, by and thru direct continuous fibres over which it sent an intellectual energy, thus controlled functions of body from one central place. This was consistent with cause of dis-ease being a vertebral subluxation interfering with flow of energy; how patient got well following adjustment. It was consistent with intellectuality displayed in health and normal life. This study is still of fullest value and time has increased it. (See A BIPOLAR THEORY OF LIVING PROCESSES, by Dr. George Crile, quoted extensively in this book.)

53. Chiropractic principle lays premise that vertebral subluxation represents cause of all dis-ease. If this is true IN MAN, why not true in any vertebrate? Conditions are alike. It was natural we should adjust subluxations in animals suffering with dis-eases similar to humans. If surgeons can experiment on cats, dogs, and monkeys, and conclude like deductions on humans, it is equally sound that Chiropractors can experiment on humans and conclude like deductions on cats, cows, dogs, horses, etc. This opens a field to those who may be interested. We can con-

ceive of no greater business value than to take race horses with springhalt and no good for track when sick, give them adjustments, get them well, put them on the track on their old record and worth the old price. A 2:04 horse is worth \$10,000. If lame, it is worth dog-meat. Chiropractic principle has proven to be practicable for any vertebrate animal as for human beings. As we evolved changes in application to human race, we tested new ideas upon lower animals and found that, change for change, there is no difference. What is good for humans, as an improvement, is equally good for other animals.

54. Was there an inexhaustible supply of intellectual force ready, willing to serve sick body once obstructions were correctly and competently removed? We laid down result of years of observation in *THE LAW OF DEMAND AND SUPPLY*. If there were a demand, supply would come forth if demand was normal and supply was needed. Educated man frequently denied this premise because he construed HE knew what "demand" was and he could determine whether or not it was "normal" and frequently denied "supply" necessity. Physicians and surgeons constantly pervert this rule of demand and supply. For that reason, Chiropractors are frequently called into conflict with patients who think as physicians and surgeons, because they have greater confidence in second-hand opinions than in what Chiropractor instructs are facts. Adhesions are a marked example. If there is a prolapsis of structure, Innate Intelligence, seeing necessity, builds supply of adhesive soft tissue structure. Physicians perform operations and remove it to leave patient worse than before, bad as it might have been as a result of a former operation which weakened supporting organs. This study is still of fullest value and time has not decreased or changed it.

55. Having conceived ganglionic anatomical concept for distribution of nerves, medically laid down, medical physiologists explained physiological action thru that system in a similar manner: Reflex action, reflex arc, stimulus, etc. Chiropractic laid down a direct continuity of nerve fibre from brain cell to tissue cell, under control of Innate Intelligence. This construed a mentality at work; a forum coming as a direct result of a demand, going to a direct place to supply demand, with a purposeful intention and function to perform; nothing haphazard, everything with direction and intention. There could be no reflex ramblings

with functions as important as those in man; reflex arcs were excuses for medical misunderstandings. New explanation was in conformity with Chiropractic principle. There has been no change in value since its inception.

(While all this explanatory research work was going on, simultaneously, going hand-in-hand, was developed THE ART SIDE—question of where to adjust, why, how, how often, when to stop, how many places, etc. Practically the whole profession is united ON PRINCIPLE but woefully disunited and in conflict on modes of adjustment art. This was the GREAT problem. It raised more methods and means, controversy both inside and outside our ranks, than any other. In Chiropractic principle, most all could and did agree. In Chiropractic practice, everybody was a standard; each was an authority; confusion reigned. In 1923, COSMOS CAME FORTH FOR FIRST TIME IN TWENTY YEARS.)

56. If a vertebra WAS subluxated, somewhere hidden in that backbone covered with skin, deeply buried amongst flesh, how could it be detected? Palpation was born. Chiropractic principle laid down that ONE vertebra was subluxated in each "subluxation area." ONE vertebra was subluxated in relation to its second and third correspondents above and below. Comparison was only way to find it. Tips of THREE fingers were glided over tips of SEVERAL vertebrae. If tip of ONE vertebra was found out of alignment with tips of other vertebrae above and below, its position was sensed, felt, and determined A SUBLUXATION. Many such irregularities were felt in each entire back. Each being determined a subluxation, each was adjusted as consistently as equational system, meric system, and palpation justified. Much in this method was defective. It was too all-inclusive a field and justified too much not justifiable. Palpation is still used, but only at such places and at such times and at such locations AS ACTUAL INTERFERENCES TO TRANSMISSION HAVE BEEN LOCATED, and even then only in absence of a spinograph to be more accurate. Original object of palpation was to secure information as to LOCATION and direction of subluxation. Present object of palpation is to secure information as to POSITION of a vertebra, predetermined to be LOCATION of

interference, and then is used only in absence of a spinograph, which would prove POSITION far more accurately than could palpation.

57. If there were some more accurate means than digital palpation to prove abnormal or normal position, palpation alone was not justified by itself. Palpation within itself had its faults, which we recognized even in early days. There certainly were other more accurate methods of determining vital question of locating subluxations for adjustment.

Nerve tracing was born to make more accurate connecting links between sick organ and place where nerve fibres issued from spinal column. Every nerve under pressure which has interference to its flow is tender to touch. We could digitally trail this nerve from organ to spine, or from spine to organ, in this way DIRECTLY proving path of fibre under pressure. This eliminated some guesswork of palpation, for sometimes nerve-tracing would lead to a vertebra which we had not suspected having irregularity in position. On reverse, there were often irregularities of palpation when no tender nerves were present. We sometimes accepted location of nerve-tracing tenderness as a more positive proof of location of subluxation, than irregularity of palpation as a means of locating place for adjustment. A book on nerve-tracing was finally published. Nerve-tracing, as a knowledge of neurological distribution of fibres under pressure, is still valid and of as much value as in days developed and put into book form. HOWEVER, CONCLUSION OF THOSE DAYS THAT IT PROVED LOCATION OF EXISTING SUBLUXATIONS HAS BEEN DISCARDED AS UNRELIABLE AND AN INACCURATE GUIDE. A modern Chiropractor still regards tender nerves found in nerve-tracing as proof of existence of nerve under pressure; still regards its paths as correct ones between spinal exits and locations of organs to which they lead; still regards definite intervertebral foramina as ones from which nerves have exit or entrance; but HE NO LONGER REGARDS IT AS MEANS OF LOCATING THE FORAMEN OCCLUDED, OR PLACE WHERE NERVES ARE SPECIFICALLY UNDER PRESSURE, OR FLOW OF ENERGY BEING INTERFERED WITH. That conclusion has been found wanting, therefore is discounted to that extent. Nerve-tracing was closely allied to meric system in this respect.

58. As an aid, help, and closely allied to nerve-tracing principle, was taut and tender fibre method of aiding in detecting where vertebra was supposed to be subluxated. It was believed when a vertebra WAS subluxated, cartilaginous fibres connected thereto would be found taut and tender on one side or other, or both. Fibres were found taut, under a gliding technique developed and used, which is still true. Believing when we found taut and tender fibres, plus nerve-tracing location of fibres as they emitted from foramina, substantiated each other, we used all these means to locate supposed-to-be location of subluxation. Tender nerves, taut and tender fibres, at spine, no longer exist as proof of subluxation any more than to palpate an appendix, find it tender, possessing taut and tender fibres, would be proof that ITS location was LOCATION of cause; for symptoms are symptoms whether found at spine or in appendix. We were mistaking SPINAL SYMPTOMS for proof of SPINAL SUBLUXATIONS. As nerve-tracing failed to prove correct location of INTERFERENCE TO TRANSMISSION, so did taut and tender fibre idea fail for want of same fact to substantiate it. Modern Chiropractor knows spinal taut and tender fibres can be found, but he interprets their presence in light of being pathological conditions somewhere along paths of nerves, even to being evidences of presence of misalignments which are not subluxations; or as proofs of presence of location of paths of nerves that have exit at place indicated, but does not regard them as conclusive or sound evidence OF PLACE OF INTERFERENCE to transmission of nerve energy.

59. A poison is anything internal or external which Innate Intelligence cannot internally use for bodily welfare. Strictly construed, this means any material substance as well as an abstract force. Gossip can do great bodily harm, because it cannot be used for bodily welfare.

Subluxation is caused by concussion of forces. Concussion of forces means a clash of TWO forces — one to enter from outside to meet with resistance from opposite internally — greater overcoming lesser. "Poison" is the external of two halves of a concussion. Therefore, any external substance is of value or danger only insofar as it represents a composed essence or dilution of energy, entering body. Any external energy, in any form, can overcome any internal resistance if it is volatile enough. "Poison"

can cause concussion of forces which will result in a vertebral subluxation, which will cause a dis-ease in body. Danger of any "poison" depends upon potency volume of energy wrapped up in contents that may enter from outer world. This principle has retained all its value.

60. Meric system was born to help solve puzzle of correct location of vertebral subluxations. As a matter of pedantic education, vertebral column can be divided into twenty-four segments, zones, or meres. Each and every person was builded under like conception, prenatal blueprint plan. It is reasonable to expect that superior to this inferior system is a super-imposed system equally builded upon like conception, prenatal blueprint plan. Brain has divisional lobes into segments, zones, or meres which correspond in areas above as backbone has below. A certain section of brain gives origin to nerves which go to a certain organ of body, via spine. Eighteenth superior zone corresponds to eighteenth inferior zone. Function expressed in eighteenth inferior zone is manufactured, generated, or originated in eighteenth superior zone. As education, this is enlightening, altho its study in no way helped solve any problem as to location of subluxation in INFERIOR meric system.

61. Chiropractic principle was born upon working hypothesis that FOR EVERY DIS-EASE THERE IS A SUBLUXATION. Theoretically, if there were eight separate dis-eases, each having a separate and distinct cause, we should locate eight separate and distinct subluxations in spinal column, all of which should be adjusted daily. We might regard each disease as separate in a separate organ, but they must more or less interweave themselves into general health of general body of patient. It was reasonable to presume one of eight possessed greater destructive values to life of patient than seven others.

Example: Patient has soreness in muscles of one leg, constipation, kidney trouble, thyroid enlargement, AND tuberculosis of lungs. Latter was more vital to life of patient than others. It, being acute, would destroy life more than chronic conditions with which patient could live to ripe old age. Why not concentrate adjustment on ONE place affecting lungs; focalize reparative intellectual adaptation to lungs; get that well first, and later follow with balance? This brought forth majors and minors,

referring to MAJOR subluxation as vital one and all others as MINORS. A pamphlet was printed on subject. Many Chiropractors followed this system with increased percentage of results, for it was found one place, taken by itself, was "cured" quicker than when healing forces were spread over many places. Ultimately, this was stepping stone in right direction, but did not finally reach desired objective.

Our research work was constantly eliminating useless work and concentrating upon more important things. Instead of building methods and means to do more, effort was to seek that specific which would accomplish more by doing less. We sought TO KNOW by exclusion rather than to accomplish our objective by shotgun methods, and not know. Majors and minors is still of value if meric system is followed and used. If modern methods are used, it is discarded in favor of THE SPECIFIC.

62. Was it true that for eight diseases in eight organs there were eight subluxations? Under majors and minors system, we adjusted ONE subluxation for most vital condition to life. One selected was arbitrary and might have been wrong, but it brought forth that while we were adjusting ONE subluxation for ONE disease, others disappeared without adjusting other subluxations (?) which caused (?) them.

What was explanation? We thot it established fact that we could have pressure upon fibres in spinal cord, in its downward passage thru spinal canal, other than ones issuing at that place, as much as we could have upon spinal nerves as they emitted thru local intervertebral foramina. Spinal cord was an elongated congregation of many spinal nerve fibres. More superior a subluxation, more congregated were the multitudinous group of spinal nerve fibres as they came out from or went into brain; for under direct brain-cell-to-tissue-cell principle, it was a continuous cycle fibre from brain to tissue and from tissue to brain. Higher the ONE subluxation, greater number of nerves were congregated at one place. Pressure above UPON CORD could do more damage at ONE place than many "subluxations" at lower places after many fibres had left the cord. This proved CORD PRESSURE idea. Step by step we were gradually laying foundation for less adjusting, at fewer places, releasing more pressures

and restoring more transmission than under older plan. Modern work has intensified proof of this principle.

63. Cord tension was an explanation of what could happen at other end of cauda equina or tail end of spinal cord when placed under pulling action, because of a possible subluxation of sacrum or coccyx. While a great deal of work was done in adjusting possible subluxations of sacrum and coccyx, it was eventually proved what we were doing was to so strain spinal column that we were ACCIDENTALLY adjusting MAJOR subluxation at a superior place in cervical region.

A simple illustration will suffice: Draw a string taut, fastening both ends. "Adjust" inferior end and entire cord is jerked, greatest effect being noticeable at distal fastening, moving object attached to same. There may be cases today where cord tensions do exist, but as we moved upward in understanding, any condition which formerly seemed to improve under sacrum and coccygeal "adjustments" can be DIRECTLY adjusted by DIRECT adjustments upon DIRECT subluxation at superior end — for fibres carrying function TO body come from superior TO inferior; flow of functional energy is from superior TO inferior. It is better to work at source than at periphery, assuming both or either end could accomplish same net result.

64. In earlier years of our research along adjusting lines we established a distinct subject known as CHIROPRACTIC ANALYSIS. Analysis is, in its usual meaning, resolving of any tissue function to its component paths and source. In its application to Chiropractic, it means a patient suffering with whatever he had, and resolving sickness into its organs into a knowledge of location of cause, location of its vertebral subluxation, adjusting of same, and restoration of health. Chiropractic analysis has been maintained as a teaching subject. It has gone thru many evolutions, keeping in step with advances made in research work. Today, CHIROPRACTIC ANALYSIS has a limited but more exclusive and yet broader meaning than before. By use of modern methods we eliminate disease, what it is, where it is, or its location. Whether patient has one or a dozen complaints, is not material. Analysis now confines itself to spinal column, determining factors in locating subluxation; knowledge of a correct adjustment; knowing when to quit, when it ceases to exist as such,

getting same case well without preliminaries or finals which have to do with dis-ease; confining its analytical procedure to CAUSE and ITS ADJUSTMENT. While this limits this subject, diagnostically, on belly side, it also broadens its use, analytically, on back side.

65. Palpation consisted of use of three fingers gliding over surface of vertebral back skin to determine comparative positions of vertebrae buried under that skin. We formed mental conclusions with those fingers. Were they right or wrong? X-ray could penetrate below and thru that surface skin, present a picture on a sensitive plate, and reveal to eye exact position of every vertebra in that spinal column, information we needed to know. Did what the plate revealed correspond with what we thot fingers found; was inside like what we thot we felt on outside? Occasionally, but usually not.

This gave birth to spinograph. Today, we may palpate but place little reliance upon it. When we want to know exact position of subluxated vertebra, we spinograph. For years, we spinographed every place our fingers palpated an irregularity, to have eye verify what fingers found, or to correct what we THOT fingers found. Under modern conditions, spinographs are taken to give exact POSITION of exact LOCATION ascertained with neurocalometer. Neurocalometer ascertains WHERE interference is; spinograph ascertains vertebra IS subluxated.

In 1930, a single-plate, full-length from occiput to coccyx, was announced by our X-ray laboratory. Full-length spinographs now become basis for proof of rapid disappearance of many misalignments (formerly called subluxations) without local adjustment a la meric system. This is one of most practical steps forward in taking adjusting art out of theory and placing it in definite and exacting field of science. Today there is no guess work in ascertaining POSITION of vertebra found subluxated.

FIRST objective of spinograph was to visually prove presence or absence of vertebral subluxation which our Chiropractic PRINCIPLE had declared existed. SECOND purpose was to verify or correct direction of subluxation which we contended our fingers palpated. We BELIEVED fingers found subluxation and used spinograph to PROVE whether direction was correct or incorrect. Today, NCM locates place of interference. Having ac-

curately located place of interference, with one scientific instrument, we spinograph THAT location with another scientific instrument to study relative and comparative positions of three contiguous vertebrae for exclusive purpose of seeing which intervertebral foramen has been decreased in size, shape, diameter, and circumference, to study which is best direction to have it moved to open same, to release pressure upon nerves.

66. Brief history of adjustic art is interesting. In reality there have been six periods in history of Chiropractic "moves" as they have been generally regarded:

- a. the shove, with its variations from Nos. 1 to 78.
- b. the push and pull, with its changes from 79 to 200.
- c. the recoil, with its modes from 201 to 205.
- d. the toggle-recoil, or 206.
- e. the adjustment with that extra something.
- f. the specific, constants and variables.

Recoil adjustment is based upon mechanical principle of necessity of reduction of ONE vertebra which is subluxated, between two others, above and below. It is increasing cleavage and reducing resistance of moving bodies upon each other. This can be attained with speed, hence recoil idea. In earlier days it was a question of dead weight shove upon one vertebra which moved others with it. Chiropractic principle hypothecates ONE vertebra is subluxated in relation to others. Adjustment is now premised upon movement of ONE vertebra—not many. Introduction of speed made this practical and accomplished desired end.

67. Toggle-recoil adjustment was an improved recoil adjustment introducing mechanical principle of toggle in positions assumed by arms and hands of adjuster, which made little force do much work. This made it possible for small women to adjust "stubborn" subluxations and made it easier for men to adjust minor subluxations in small people by judging action and speed where little did much.

68. How to deliver an adjustment was important. How to place patient to gain greatest advantage was also important as a direct aid to same end. At first, patient was laid, stomach down,

on one-piece, flat-top table. Every move made upon his back drove him flat against table. This was often painful. At later date, two-piece table was introduced, with chest on rear end of front table, and thighs on front portion of rear table, with abdomen swinging between two. This increased fixed points above and below, and swung subluxated area free between two points. Third stage in this development was knee-chest or Palmer-posture, with knees on floor and chest on rear end of front table. By bringing knees either forward or backward it enforced relaxation, which placed patient where he could less resist invasionary force of adjuster and made adjustment easier.

Upon determining that vertebral subluxations could more or less "adjust" themselves if they were a one-direction misalignment, or possibly a two-direction digression from perfect alignment, but certain concussions of force took a torque twist of three directions, then it was torqued out of alignment and became locked in this cork-screw torque, subluxated position. To lay patient down in any position described above on tables described above, would force patient to lay head to one side or other to try to untorque torqued subluxation. By chest being down, head turned, this put HEAD on artificial torque within itself. Inside that torqued twisted head was a torqued twisted atlas or axis. To give an adjustment to get one out, we had to overcome both head torque as well as vertebral torque. To overcome this we developed the lateral or side-posture table, where patient lies on his left or right side, table being flat below shoulders and his head on one or other side, dependent on from which side we were going to adjust. In this way, head was NOT torqued, even tho vertebral subluxation inside was. Our adjustment now was directed to take out only ONE torque — not two.

69. In 1906, principle of "hot box" was laid down in our Volume iii. Principle was: If a vertebra was subluxated it was producing pressure upon nerves, which introduced interference to transmission of abstract energy thru physical medium, which offered resistance to transmission, which set up a hot area around place of resistance. In acute cases, this excess heat registered itself in an acute fever great enough for clinical thermometers to register and human hand to feel. With use of human hand, this area of hot box could be located in back, determining where

ACUTE hot nerves had their exit. When this hot box area became chronic (without adjustment), it was impossible to locate it by any then-used means because its degree was imperceptible because of minute character.

This knowledge was used then by Chiropractor to locate what he then thought was acute subluxation in acute fevers.

70. In 1923, neurocalometer was conceived, invented, and, in 1925, patented. This is a thermo-couple instrument which measures minute degrees of acute and chronic heat along both sides of spinal column and LOCATES ACUTE OR CHRONIC SUBLUXATIONS WITH DEGREE OF ACCURACY WHICH ONLY SCIENTIFIC INSTRUMENTS IN HANDS OF COMPETENT USERS COULD DO. When this instrument proved to do things we could not do before, it displaced much. Meric system, as a means of locating subluxations, was obsolete; palpation, nerve-tracing, taut and tender fibres, contracted muscles, etc., as means to the end of locating subluxations were discarded. Neurocalometer was relied upon exclusively to cover field it covered. It added new light beyond human ascertaining; it told when subluxation was such, when it was not; when it had been adjusted; when it did not need another adjustment, etc. Neurocalometer DID MORE TO EVOLUTIONIZE PRACTICAL ADJUSTMENT SIDE OF CHIROPRACTIC ART THAN ANY OTHER GROUP OF IDEAS INTRODUCED.

71. One thing neurocalometer did was vitally important. Previous to its use, we thought every time we punched, pushed, or recoiled on a vertebra and heard it pop and felt it move, that alone constituted adjustment. Neurocalometer proved many such were not adjustments but were movements of bones, not devoid of injury as we supposed. It proved in many places and many times when we thought we had given adjustment, had released pressure upon nerves, had restored transmission, that we created NEW pressures, increased OLD pressures, decreased flow of mental impulses, and made many cases worse. With this knowledge, we saw necessity for an INNATE ADJUSTMENT — the adjustment not given alone by Chiropractor but executed by Innate Intelligence resident within body of patient. We began to reconstruct our approach to get Innate of patient to make that fine discrimination between shoving of bones by Chiroprac-

tor and actual correct repositioning of subluxated vertebra by Innate of patient, who alone knew where it DID belong.

72. Up to recent days, Chiropractic practice had laid the premise that so long as a person had a subluxation he was sick. Being sick, subluxation continued to exist. Being sick because of subluxation, he should be adjusted until he got well. Neurocalometer abused that premise. There are those who refuse to be bound by limitations of tradition. As soon as heat-reading interference was gone, subluxation no longer existed; but we did find subluxation had a persistent way of returning daily, therefore daily adjustments were the order, each time checking until it was gone. In instances, for reasons unknown, subluxations would stay out for a day or two. We began checking to find this reason. IT WAS DIFFERENCE IN ADJUSTMENT GIVEN. We began to give that kind of adjustment which would extend time between necessities for adjustment. Daily, we checked, analyzed, and researched, until now cases come for weeks and have only one adjustment, one place, once, and get well of every disease in their body. This adjustment which we now give knowingly and intelligently, is "the adjustment with that extra something, having staying-put value." This evolution changed much and made obsolete many former opinions of value of certain kinds of "adjustments." By an exhaustive series of tests, otherwise printed, it proved certain "moves" would and certain other "moves" would not accomplish this great and ultimate objective sought for in adjustment to get sick people well.

73. After adjustment is given, after pressure has been released, after current of intellectual energy has been restored to normal quantity flow, is patient well? In many cases results are startlingly rapid. Results can be accounted as miracles. In other chronic cases, it may take months before chronic pathology has been rebuilt back to normal tissue function. Speed with which this occurs is study of momentum in growth and recovery of that which was abnormal. Some people possess rapid momentum, others slow. It is impossible to prognosticate any case with accuracy, for the one unknown factor in every case is momentum. Momentum is not a new subject in our study, but new interpretation placed upon new resultant return to healthy function places it in category of a new subject.

74. When subluxation exists and disease is growing, there is an accumulative **DESTRUCTIVE** survival value day by day, week by week, until disease progresses to place and time when case goes to physician, Chiropractor, or his grave. When subluxation is adjusted and dis-ease is decreasing and health is increasing, there is an accumulative **CONSTRUCTIVE** survival value day by day, week by week, until case progresses upward to normal health. Study of survival value has greater importance now because of increased efficiency in adjustment art and more rapid recoveries observed.

75. Now we reach the last step — **THE SPECIFIC**. Because this is thoroly explained in another story, we will not go into detail here. We find **ONE** subluxation from which **ALL** symptoms and pathologies are caused. It **EXCLUSIVELY** is adjusted **ONLY** at such times and places **WHEN** and **WHERE** interference exists, to see how **FEW** times it can be adjusted to get case well.

HOW OUR PROFESSION REACTED TO PROGRESS

There exists a group in our ranks who refuse to grow with this growing movement; who prefer to hold fast to older methods now relegated to past. It is interesting to compare their hypothe-cations to new reasoning. Having developed both old and new systems, author can reliably compare them.

One group call themselves "mechanical correction" Chiropractors.

"The purpose of a mechanical correction of **ENTIRE** spine is to enlarge **ALL** occluded intervertebral foramina."

Purpose of any Chiropractor, working with Chiropractic principle, is to enlarge **ONLY** occluded intervertebral foramina, be it one or a dozen. Modern view is to **KNOW** how many and where each is, when it is and is not — not what is supposed to be. There was a time when all Chiropractors worked unknowingly in dark as this group are now. We **BELIEVED** every bump, irregularity, misalignment palpated and that we felt or observed occluded by the spinograph, was a subluxation, therefore needed

adjustment. We once believed they existed along "entire spine". Today we KNOW how few they are.

"Advantages to be gained are many with no disadvantages."

That language is so familiar that it sounds like our echo speaking ten to fifteen years ago.

Anything done at any place where there is NOT a subluxation in fact, WITH NO INTERFERENCE TO TRANSMISSION EXISTING, creates what we hoped to adjust out. Advantages to be gained from adjusting a SUBLUXATION are many. Disadvantages of "adjusting" any place NOT a subluxation are many and serious. Today we KNOW the difference.

"All limitations encountered in a specific adjusting method are immediately overcome, and all benefits, and more, are accomplished."

If this statement could be *proved* true, problem would be solved. But it exists by virtue of being a statement BELIEVED. At one time *we* believed it. We moderns do not ask belief in any unproved statement. When a patient is sick and he has ONE subluxation which can be proven, that ALONE should be adjusted. When done, all "limitations" in Chiropractic principle and practice have been proven, both positive and negative — when ONE is proven to exist, all others are proven not to exist. When ONE adjustment is proven necessary, all others are proven unnecessary. Anything more than adjustment of THE subluxation, at any other place, is a limitation of the Chiropractic principle and practice, both negative and positive — by proving nothing more was necessary, more would be unnecessary. Chiropractor can adjust a subluxation. If he does more upon other than a subluxation, he is withdrawing the broad scope of Chiropractic and limiting it to orthopedic surgery.

"The construction of your case can be wrong and still results will be forthcoming."

All of us have been securing results, thruout existence of Chiropractic since its birth, even thru its worse and crude days, down to the hit-'em-all method quoted — for accidents happen even with ignorance of sustaining facts. If any man shoots into woods far enough, uses enough shot, and aims at enough places,

he MAY some day, in some way, hit something and still not KNOW where, when, or how. He can be devoid of accuracy or competency, and still hit something once in a while. That was the state of the Chiropractic art until 1923, notwithstanding it was gradually climbing ladder of preparation to some day reach KNOWLEDGE. Accidental cases kept the Chiropractic principle from being obliterated in spite of inefficiency of the Chiropractic practice and because of the efficiency of a small percentage of "accidents" which worked.

Any man who does not KNOW where subluxation is, is compelled to do shotgun work. If we BELIEVED principle right, and did not KNOW and could not PROVE we knew where subluxation was, and when it was and was not present, we are certain we, too, would practice any system we believed nearest applied that principle. If we did not have competent use of neurocalometer, we, too, would fall back upon a mechanical-correction-of-all-vertebrae system. Notwithstanding we would do harm "adjusting" wrong places, wrong times, occasionally we might accidentally get ONE right, and that ONCE would save our face and case, and law of averages would be: whereas ALL cases Chiropractor receives are medical failures, if he got five out of one hundred well, his percentage of successes would be higher than any medical man. Modern Chiropractor does not start with "wrong" constructions, hoping to arrive at right conclusions. He KNOWS where interferences are that create dis-ease; he KNOWS when he has or has not given an adjustment.

"Mechanical correction of entire spine brings about a permanency in results obtained by no other method, because a mechanical balance is secured."

Chiropractic principle is premised upon vertebral subluxation and its adjustment. There was a time when WE THOT we knew where it was. In absence of KNOWLEDGE, we believed much. Did we have the work previous to 1923 and did not have the work since 1923, we would use that same language to express what we BELIEVED.

Previous-to-1923 case: Mechanical correctionists believe that somewhere hidden in spinal column are *many* subluxations. How many, where each is, they do not know. They BELIEVE they

know. They give "adjustment" to all. That is, they BELIEVE they do. They give each the correct direction. That is, they THINK they do. They do not KNOW they have found even one, nor do they know when to stop on one, many, or all. They BELIEVE much and KNOW nothing. They substitute, for knowledge, a hit-'em-all, anywhere, everywhere method. They believe in straightening kinks in spine, forcibly level pelvis, pull one leg or other to lengthen it. WITH THE subluxation not KNOWINGLY corrected (unless an accident happens) muscles continue to contract, and while spine is TEMPORARILY straightened, its cause has not been PERMANENTLY corrected.

Same case since 1923 with modern methods: A vertebral subluxation occurs. Contractures of various back muscles occur as pathology. Many misalignments come in spine; column becomes abnormally curved; pelvis tips; one leg is shorter than other, etc. Chiropractor who KNOWS principle and practice of Chiropractic uses such means as will give him KNOWLEDGE PROOF of location, position, and number of subluxation; gives an adjustment he KNOWS is such; KNOWS when to stop when it is no longer a subluxation; muscles relax, spine straightens, pelvis comes level, and legs are of equal length. There is nothing more to be done and he KNOWS it.

There is a difference between temporary ARTIFICIAL mechanical balance, and permanent NATURAL mechanical balance.

The method is practically fool-proof, because it is impossible to omit doing anything which is necessary to be done. We have done everything anybody else could or would do, therefore we have omitted nothing to be done; therefore we are fool-proof of having omitted anything. The case could easily die for want of one right thing to be done, at right place, in right way, at right time. Medical men excuse themselves on same ground that they have done everything wrong they have been taught to do; therefore case died because of "God's will!" It is better to be a modern Chiropractor and KNOW one single RIGHT THING and save life.

In absence of definite, precise, exacting FACTS to know, understand, and use, even Chiropractors can assume same mystifying attitude of medical profession and hide behind mental smoke-screens because of absence of A KNOWLEDGE OF CAUSE; and because thereof, effects must be treated to try and get cases

well; even at that, more successful accidents happen with our older methods than happened in medicine and surgery. A little of wrong thing done at right place will occasionally work even tho an accident.

SMELTER SEPARATES DROSS FROM GOLD

Analysis of these subjects shows there have been changes in Chiropractic philosophical subjects, but it DOES show evolution within subjects covering adjustment art; that modifications occurred in many, even in some instances to complete substitution.

Subjects which have most undergone reconstruction, which have clarified or confused; developed a closer understanding or widened breach, against developer as well as developed, in our profession, which have brot about an acceptance or rejection of SPECIFIC work, are following:

- Meric System.
- Retracing.
- Equations.
- Palpation.
- Nerve Tracing.
- Taut and Tender Fibres.
- Majors and Minors.
- Cord Tensions.
- Chiropractic Analysis.
- Spinography.
- Adjustment Technique.
- Momentum.

With exception of one (momentum), all are art subjects around which pivot controversial interests of PRACTICE portion of our profession. PRINCIPLE subjects remain practically unchanged.

Chiropractic is a growing movement. It behooves all to keep up with its growth until it reaches a settled and established state of its art; then, and not until, can any have attained or reached the objective set forth in its fundamental principle as laid down by D. D. Palmer in 1895.

Some men and methods become obsolete because they fail to grow with a growing movement. They become satisfied only so

far as they adhere to older methods that have been outgrown by better ones which took their place.

Subjects were conceived and developed at varying periods during 36 years. They did not come in sequence as listed. For continuity, some have been grouped as to relationship. Thru years there has never been any inter-relationship of one idea and next one born, perhaps years in advance of its sequence to ideas just ahead or behind. That made it difficult for us workers to see place or position of work done. This made it more difficult for average student passing thru school, on a temporary stay. If we could retrace and restep progress made, and develop each in turn, in sequence so essential, everybody would have understood more as time progressed.

We can understand confusion, and therefore little understanding of whole, that any Chiropractor would have, as this procession of ideas passes before him; unless he were now to properly place and piece each in its right sequence as a part of a finished whole. We can understand almost disgust, if not open hostility, that would actuate any Chiropractor as procession passes, if he did not understand new phases that have entered since he left school. Finished, up to day he left school; unfinished, after he left school. If his mind were a complete study when he graduated, he would rebel at anything new entering as improved service afterward.

Men and methods are "modern," men are "satisfied," and methods are "finished" as long as book is closed. Men and methods are antiquated if book is open, growth occurs, and nothing is construed to have reached last word. All is modern to him who stagnates. All is obsolete to him who grows.

To one who thinks in terms of palpation, nerve-tracing, taut and tender fibres as means of locating subluxations, NCM and Spinograph are unnecessary, foreign, alien thots, unneeded and unsatisfactory in accomplishing anything more than he does. To him who thinks in actions of adjusting every bump, hill, valley, all vertebrae, or many of them, SPECIFIC system is ridiculous, silly, unscientific, and unworthy of attention. To one who will not grow, there is opposition to all growth.

In this respect, Chiropractors AND CHIROPRACTORS are no different, as human creatures, than was candle-burner to electric

lights, oxen-cart driver to automobile, or all modern service developments. We have Chiropractors who prefer tallow-dip, pony express, and other methods that were modern when they were learning to carry on and they were active participants in human period of rendering service. We have another growing group that cannot stand still, refuse to hibernate, who seek improvement. Man who writes this lives to serve those men. It is a pleasure for an active, growing, living mind to associate with those of his kind.

There are Chiropractors who have grown; others who are content to remain still. Chiropractic profession consists of degrees of growth, some still practicing who grew out of vintage of 1900, and others who are out of new growth of 1931 or 1951. To keep fruit producing, we prune old wood. The Palmer School of Chiropractic puts on a Lyceum each year, invites Chiropractic profession and gives, without cost, full growth of that year so ALL may have to use on every case, latest and best of work — to end that more sick people can be made well quicker at least effort and cost to themselves.

There is no greater joy than that resting inherently within men, in keeping abreast of growing, developing movements, to thereby render a worthy and sincere service to needy sick.

BLIND FLYING

Some time ago, Post and Gatty (who flew around world in 8 days) spent two days as our house guests.

We discussed with them one greatest evil in aviation, viz., fog and "blind flying" that goes with it.

When an aviator is "up in air," traveling 150 to 300 miles per hour or more, with human life in his hands, ten or thousands of feet above earth, surrounded by a dense, impenetrable fog, he must do "blind flying." It is "blind" because he cannot see thru that fog to know whether he is one foot or 10,000 feet up; whether he is ten miles from, or over a landing field; whether there are mountains, valleys, or plains ahead; whether he is running into

wind, rain, sleet, or sunshine and clear weather — each determines safety of lives in his keeping.

"Blind flying" necessitated invention and development of instruments to solve these problems.

Short-wave radio, between ship and landing field, gives weather reports ahead and behind; tells when plane is directly over a landing field.

Neon beacon lights tell where, and give pilot outlines of a landing field, even tho there is a low-hanging, heavy fog.

Said Post: "I grouped three flying instruments so that my eyes and other senses coordinated best. They were bank-and-turn indicator, rate-of-climb meter, and artificial gyroscopic horizon." First indicates slightest gyration of plane shown on a swinging hand which flops in direction plane is turning. Rate of climb meter kept plane on a common level. Under normal conditions, in smooth air, artificial horizon is an inclinometer, a bank indicator, and a rate-of-climb meter all rolled into one. Air-temperature indicator warned where there was danger of ice forming on wings.

Said Gatty: "I prepared a special drift and speed indicator which indicated altitude above object sighted." Realizing that long flights require blind flying, we were interested in knowing whether human equation alone directed them or whether they flew BLIND so far as human mind was concerned, and relied upon faithfulness of their instruments.

BLIND ADJUSTING

We Chiropractors adjust in a dense and impenetrable fog when we look at that back-bone and wonder where subluxation landing field is; how far or how close we need to adjust ourselves to determine exact position to land; whether we will land safely or dangerously; whether we will smash plane and eventually kill life entrusted to our hands.

"Blind flying" necessitated invention and development of instruments in hands of aviators; so have we been forced to give

birth to and develop instruments which would make "blind adjusting" safe in hands of Chiropractors in spite of fogs bewildering minds.

Symptomatology, pathology, diagnosis have their instruments so far as symptomatology and pathology are concerned, none of which was of benefit to Chiropractors to deduce adjusting obstacles with subluxations and adjustments. Any person who has tried to be a Chiropractor, working with Chiropractic principle and practice, has realized that wrapped inside of every human backbone are dense fogs that force us to fly blind. Today, spinograph and neurocalometer make possible a SAFE vertebral subluxation and adjustment blind flying; and while we fly in spite of our senses, instruments guide us safely and surely to a sane landing field as to position and location of subluxation and adjustment, and thus save lives of those entrusted to us.

CAN A SUBLUXATION BECOME A MISALIGNMENT? CAN A MISALIGNMENT BECOME A SUBLUXATION?

As well ask: can a subluxation become a dislocation; a dislocation become a fracture? Each is result of a comparative degree of violence, destroying natural integrity of substance of bone or its relationship with other bones. If degree of violence is increased, misalignment can become a subluxation; a subluxation a dislocation; a dislocation a fracture; or, reversing process; if a condition of fracture exist, its segments could become dislocated in their relations with other bones; a dislocation could be in conjunction with subluxation, and a subluxation in conjunction with a misalignment.

A fracture is where continuity of ONE bone, within itself, has been rendered into more than one section. With fractures, in practice, Chiropractor is not concerned. With principle of what CAUSES and RESETS fractures, Chiropractor IS concerned; and, were fractures not within exclusive practice scope of surgery, he would be more competent to "set" them with use of recoil principle of adjustment than would average surgeon with anesthesia.

A dislocation, subluxation, or misalignment is a comparative and relative degree of dis-relationship between one bone and another. As it applies itself to vertebral dis-relationships, a dis-

location is a complete separation of one vertebra from any articulation with any other one vertebra; a subluxation, in Chiropractic, is a partial separation of one vertebra from a partial articulation of one or more articulatory surfaces from co-respondents above and below; as a result of which there IS occlusion of a foramen or foramina, producing a pressure upon nerves, which interferes with transmission of normal quantity of mental impulse supply thru nerves, reducing quantity flow, offering resistance to transmission. A vertebral misalignment is a partial separation of one vertebra from a partial articulation of one or more articulatory surfaces from another vertebra, as a result of which there is none of other two contributory factors involved in a subluxation.

Least degree of violent and dangerous concussion of forces, so far as abnormal continuity of osseous structures are concerned, is vertebral misalignment; a more violent concussion of forces than misalignment, and less than dislocation would produce a vertebral subluxation; still more violent concussion of forces would produce dislocation; and most violent form would produce fracture.

An increase of lowest degree of violence can step-up to a greater; or, being a greater, it is possible that it was reduced to a lower violence.

Given a certain case, having eight places of nerve-pressure, heat-interference, NCM-readings, any one or all "COULD BE" subluxation interferences. Are they? In past, we have BELIEVED all eight WERE subluxations. By researching, rechecking-out method, pre-adjustment and post-adjustment elimination system, we have seen that ONE of eight IS a subluxation, other seven are misalignments. To adjust THE subluxation, MAJOR interference, is to automatically reduce ALL other seven heat-interference, nerve-readings, proving they were misalignments and NOT subluxations.

Is it possible for a SUBLUXATION to reduce itself into misalignment degree? We believe so. Conditions indicate this true. A case has a headache. He can't have a headache without a subluxation, IF Chiropractic principle is right. Individual takes Turkish bath, lies down and relaxes, or goes to sleep and wakes up. Headache is TEMPORARILY gone. What happened? Atlas

subluxation became less than itself and became TEMPORARILY a misalignment. Individual is NOT WELL, for misalignment will return as subluxation, headache PERMANENTLY exist, and will until such a time as an atlas or axis ADJUSTMENT is given. Case has had headaches for years; they will remain for years; hundreds of times they have TEMPORARILY faded out, but they ALWAYS came permanently back. Thus a subluxation can become TEMPORARILY less than itself.

Is it possible for an atlas or axis MISALIGNMENT to increase itself into subluxation degree? We believe so. Conditions indicate this true. A careful check on acute stages indicates that an individual with atlas or axis misalignment can take a Turkish bath, lie down and relax or go to sleep and wake up worse. Difficulty is TEMPORARILY worse. What happened? Atlas misalignment became a misalignment-subluxation. This individual is NOT well, for misalignment which TEMPORARILY changed itself in acute period to a temporary subluxation, is MAJOR SUBLUXATION that produced it as a misalignment.

It is possible for a CHRONIC atlas or axis MISALIGNMENT to become temporarily an ACUTE MISALIGNMENT-SUBLUXATION. If no adjustment is given, as soon as acute passes into chronic, we are again back to CHRONIC MISALIGNMENT, temporary misalignment-subluxation being gone.

A SUBLUXATION is PERMANENTLY a CAUSATIVE subluxation but can be TEMPORARILY, IN AN ACUTE CONDITION, CURATIVE MISALIGNMENT. An atlas or axis MISALIGNMENT is PERMANENTLY a misalignment but can be TEMPORARILY, in an acute condition, a causative subluxation. By "acute" is here meant as to time.

If misalignment can temporarily change its character from a misalignment to a misalignment-subluxation, in an acute stage, and thus increase local symptomatology, pathology, or dis-ease, should local misalignment-subluxation be adjusted? Emphatically NO.

Why? Standing as MAJOR over all PERMANENT misalignments or misalignment-subluxations, in chronic stages, is that MAJOR SUBLUXATION that creates them via paralyzed, pro-lapsed, or contracted-contracted muscles in various layers of back.

Let us cite a case.

A case has regularly, chronic, seven places of heat-interference nerve-readings. He has chronic conditions of disease. *One* IS a major. IF adjusted on *THAT ONE*, all readings disappear and all troubles pass out. Suppose, however, he is NOT adjusted. He gets down with an acute condition which is called "flu." It starts with a "cold in the head." A trifle later, general fever sets in. Kidneys refuse to act. And still later "it settles" into "a lung fever," which hangs on for weeks.

Suppose we read this case in acute "flu" stage. What do we find? Seven places of heat-interference nerve-readings, located at same places, all readings higher than in chronic period previous. Two of lower places stand out prominently, in tenderness, taut fibres and with contractured muscles — lung place and kidney place.

Should they be adjusted, in addition to MAJOR above? Suppose we do, what is result? We have TEMPORARILY reduced a misalignment. Why? Because MAJOR SUBLUXATION SUPERIOR exists that changed from chronic period of misalignment to an acute period of misalignment. ONLY THING that can PERMANENTLY correct acute misalignment to a permanent misalignment, and finally correct it out as a misalignment to a normal alignment, is to ADJUST THE SUPERIOR atlas or axis specific MAJOR SUBLUXATION that created them all.

Anything done upon misalignment creates same relief that a Turkish bath, sleep, or relaxation in any treatment has done — it relieves but does NOT correct CAUSE.

Desiring greatest service, in quickest time, in most permanent form, adjust ONLY MAJOR subluxation and ALL misalignments, whether acute or chronic (as to time and degree) will disappear and individual will get WELL in all that means.

WHY IS "ONCE A MAJOR, ALWAYS A MAJOR"?

If possible to visualize, from outside, what can go on inside of another person's neck, suppose we make an imaginary trip and see.

Hypothesize a PERFECT cervical set of vertebrae, sitting in a PERFECTLY healthy man. Each and every vertebra is in PERFECT relationship; every articular facet resting normally on its co-respondents above and below. Individual has a fall, strain, wrench, or any one of million things that can act as a concussion of forces to produce a subluxation. What DID happen, which moves ONE vertebra from normal position with ones above and below AND HOLDS IT OUT OF PLACE? Were intervertebral cartilaginous disks stretched; inter-spinous ligaments strained—which one or ones of thousands of things that could happen, did happen? Why should temporary concussion, struggle, and abnormality remain permanently against greater value of everything which was normal and has been permanently? How could something abnormal, temporarily, permanently overcome that which had been normally existing for years.

Hypothesize opposite: individual with a subluxation that has been existing, in chronic form, for years, from which he has been suffering with chronic disease for years. In former times, if he went to a Chiropractor, we BELIEVED that subluxation had worn a rut or groove, vertebral articulations were lopsided, abnormal in shape, and we had to keep “adjusting” for years “until the vertebra was built up” so it would stay in new position that we were trying to maintain; that Innate had to fill up rut, or fill in groove, and it wouldn’t stay in normal position until that was accomplished. In line with that, we kept hammering away, “replacing” it day after day, month after month, with idea we WERE helping it retain in normal position, a few minutes at a time, so it COULD rebuild.

Hypothesize modern fact. Individual has a subluxation that has been existing, in chronic form, for years. Today he goes to a SPECIFIC Chiropractor, who locates interference, spinographs position, gives AN adjustment. That vertebra may stay in position for two or three days, two or three weeks, or as long as necessary to get case well.

What DID happen inside, which causes ONE vertebra, after it has been out in a chronic form, AND STAYED OUT, for years, to go back to normal position as a result of ONE adjustment, delivered in a few seconds, AND HOLDS IT IN POSITION?

Were intervertebral cartilaginous disks relaxed; did interspinous ligaments assume normal elasticity at once and retain them — which one or ones of the thousands of things that could happen, did happen? Why should temporary concussion remain permanently against greater value of everything which was abnormal and had been permanently for years? How could something, normal, temporarily, permanently overcome that which had been abnormally existing for years?

To original question, we have facts to offer that it is. To physiological, anatomical, or pathological explanation of what takes place, internally, we have no explanation. Dead men offer no light. Live men cannot offer information we need. Some day, somebody will give this information.

WHY CASES GET WELL FASTER UNDER ONE SYSTEM THAN ANOTHER AND YET BOTH “SYSTEMS” CAN BE “CHIROPRACTIC”

Best way to test any system as to merit in getting sick well, is to take one definite case, put it thru tests of various systems, and watch net result of each, in results, by comparison.

Following lady patient had been suffering with a complication of conditions; female troubles, constipation, headaches, rheumatism in all joints, etc. This is mentioned only because it has a bearing with first two of three systems used.

Patient, being of thinking, discerning type, decided to use judgment in picking Chiropractor. She wrote to school and wanted “one who used same system we did, viz., NCM as well as SPGH.” We referred her to just such, in her town. She followed him consistently for six months, “with no results or change in any condition she suffered with.” (Later it will appear this case came back to us.) Upon inquiry, we found this Chiropractor “used NCM and took spinographs of her back,” etc. “He treated me in six places which he said showed readings.”

First Chiropractor —

- (a) used NCM to ascertain location
- (b) used SPGH to ascertain position

- (c) adjusted according to both
- (d) failed to get case well after 6 months
- (e) kept no records of case, for he considered this unnecessary.

This case then went to a second Chiropractor in same city. This Chiropractor tried to follow SPECIFIC idea. He kept records. Case went to him 3 months, with some improvement but not enough to justify continuing. She wrote us asking "what was wrong." We wrote Chiropractor, asking him to send his records, which he did.

We cannot, for want of space, reprint records of 3 months, but they reveal he adjusted case almost daily thruout period of 3 months. Records show that readings, daily, were of sufficient degree to justify his adjusting her.

This record reveals one salient angle in study of cases now, viz., subluxation reappeared EVERY day, as evidenced by reading which reappeared EVERY day. This necessitated adjustment EVERY day, to take it out. This record further reveals he WAS able to so adjust, each day, that he got what was a complete check-out.

We found this case appeared in his office regularly at NINE o'clock each morning except Sunday.

This fact stands out as a basis of calculation: sometime between NINE o'clock each morning, subluxation reappeared, AND THAT KEPT UP THRUOUT THE ENTIRE MONTH OF THE ONE MONTH'S RECORD, WHICH WE REPRINT HERE, which carried out as an issue consistently thruout other five months of record as well.

What hour of day, following adjustment, did subluxation reappear? Was it within 5 minutes or 6 hours? Not knowing, suppose we hypothesize it stayed just 6 hours each day for 3 months. Six hours is 25 per cent of a day. During other 75 per cent of time, subluxation was back again, occluding foramen, pressure was on, interference existed, mental impulse flow was diminished, and disease was growing worse.

Under this construction, in any one day, week, or month, case was getting well one-fourth of time and getting sick three-fourths

of time. How long would it take this case to get well? Would or could case ever get well? If so, how? There is NO WAY unless you could increase that one-fourth time and decrease three-fourths time. How could that be done?

This Chiropractor was doing everything according to Hoyle, wasn't he? He was strictly following major reading, adjusting it only, adjusting no other. In giving adjustments, he was getting, in main, complete check-outs daily. He was sending case home with clear readings. YET THEY WOULD PERSISTENTLY RETURN BEFORE NEXT DAY.

Case, having sold herself to correctness of Chiropractic principle, believing she would get well if right thing were done just right, decided to come to Davenport and place herself under our personal professional clinic.

Our record of case shows she was adjusted at one place only — same place and direction as picked by Chiropractor No. 2 — and then only twice during three weeks.

This case appeared in our office regularly at EIGHT o'clock each morning except Sunday. This record reveals that outside of ONCE, subluxation adjusted STAYED ADJUSTED and that kept up thruout entire three weeks that case was with us. Record further reveals that first day case came in WITH a subluxation; she was adjusted; it checked out. Thruout entire three weeks subluxation STAYED OUT, with exception of once (7-25) when it was adjusted and remained out balance of time with us.

It is not necessary here to assume when it returned, for it remained out for 24 hours, day after day, week after week, with exception of once.

Make a comparison between record of second Chiropractor's first week and record of our first week. In that record case was getting better 25 per cent of time. In our record it shows she was getting WELL 100 per cent of time and no sickness was growing in other three-fourths of time, as was true in his record.

Our record reveals that adjustment STAYED 24 hours of every day for 3 weeks. In one week our case was getting well 4 times as fast as his. Our case gained 4 times as much as his. Our case cut 75 per cent growth of disease and thereby cut down 300 per

cent (4 times 75 per cent) of disease by not having it existing at all.

Our case gained as much in 1 week as his did in 4 weeks, computing solely our 100 per cent against his 25 per cent. Our case eliminated 75 per cent disease growth each week, so we were gaining while his was losing. Our case gained as much in 3 weeks as his could have gained in 6 months, if you can call accumulative constructive and destructive survival values an off-set to each other.

His case—4 weeks of 25 per cent gain

4 weeks of 75 per cent loss (which we gained)
12 weeks.

Our case—4 weeks of 100 per cent gain

No loss—which equals 16 weeks, each week, assuming you could stop destructive work of his case in 4 weeks in some unknown way.

If there be a subluxation that does not cause instant death, some mental impulse must be getting thru! So, if there is one unit of constructive impulse getting thru, let (plus 1) indicate that per hour. But destructive units are represented by (minus 2) per hour. Plus one added to minus two equals minus one, which is net result of subluxation per hour.

If subluxation is adjusted and there is a complete check-out, let (plus 3) represent constructive units per hour.

If adjustment holds 6 hours and reading comes back for 18 hours, you will have

6X (plus 3)	equals plus	18 units of constructive value
18X (minus 1)	equals minus	18 units of destructive value
	plus or minus	0 equals gain or loss

If your adjustment holds 12 hours and returns for 12 hours, you will have

12X (plus 3)	equals plus	36 constructive units
12X (minus 1)	equals minus	12 destructive units
	plus	24 constructive units for 24 hours

If your adjustment holds for 1 week, except last 12 hours, your figures will be .

156X (plus 3) equals plus 468
 12X (minus 1) equals minus 12
 plus 456 constructive units or 19
 times greater than when
 adjustment held just 12
 hours.

If your adjustment held 2 weeks, except 12 hours, your figures would be

324X (plus 3) equals plus 972
 12X (minus 1) equals minus 12
 plus 960 constructive units or 40
 times as great as when
 adjustment held just 12
 hours.

Patients will get worse, hang fire, or get well in exact ratio as either of conditions outlined in second instance prevail, viz., 25 per cent of restored function or 75 per cent of disease continues to grow; as either increases or decreases with TIME as great intermediary.

When we use NCM, "read" a case and express our reading in "points," each "point" represents a degree of subluxation, occlusion, pressure, resistance, and interference to transmission of mental impulse supply flowing between brain and body; or represents its opposite if such reading is minus those "point" interpretations, viz., a degree of efficiency of adjustment, opening foramen, releasure of pressure, lack of resistance, restoration of transmission — and that knowledge is Chiropractic. You become a Chiropractor as you reduce readings; or fail as you fail to reduce them.

It would be impossible to have any case appear, day after day, and have SAME LOCATIONS appear or have SAME QUANTITIES of readings appear exactly. Cases DO appear, day after day, with same major, with high enough reading to justify adjustment day after day, and converse is also true, which makes it

possible for one to determine whether his case is holding his own, getting better, or worse.

Can this place of major adjustment be picked without NCM?
No!

Can one ascertain when to give next adjustment without NCM?
No!

Can a D. C. bring about above result without above knowledge gained by use of NCM? No!

The difference between this case passing thru hands of three different Chiropractors, all supposedly using same instrument, is

- First Chiropractor did not build up case record to where he was taught where, when, and how to use them.
- Second Chiropractor was using them correctly, but his adjustment was not attaining its highest efficiency in element of health building. TIME considered.
- Third Chiropractor was doing less, but getting more accumulative constructive survival value in TIME at work.

The difference between second and third Chiropractor was difference between quality of adjustment given, assuming that SAME KIND of adjustment was given by both to same case — the toggle recoil.

If some adjustment, other than a toggle recoil, was used, difference between would be even greater than here explained.

WHAT IS MEANT BY "BETTER QUALITY" ADJUSTMENT WITH THAT STAYING- PUT VALUE?"

There is nothing new to what we reveal; yet, under new interpretation and construction placed on each point, it is all new.

Vertebral subluxation, vertebral adjustment, and vertebral subluxation AND adjustment is a ONE vertebra study, understanding and application in ITS relationship between two corresponding vertebrae superior and inferior to IT.

Evolution of vertebral adjustment has gone thru three stages —

- push
- push and pull
- and toggle-recoil

First two were actions based on dead weight movement of one inert mass against another; latter was based on concentration of forces, delivered with speed, where there was no element of dead weight, but only element of little weight in fast action.

Evolution of vertebral adjustment has gone thru two periods — MOVING BONES and giving AN ADJUSTMENT; one in multiple and other in singular; one from without, other from within.

Chiropractors, today, divide themselves into two groups; each based upon a state of understanding: those who MOVE BONES and are satisfied to begin, do and stop there; and those who give AN ADJUSTMENT upon higher understanding of necessities, conditions, and corrections.

Chiropractor who MOVES BONES thinks, and sincerely, that he IS giving “an adjustment” as much as Chiropractor who DOES give one. It is difficult to get one group to see that there is a distinction of difference which proves itself in marked differences in results by contrast.

That Chiropractor who thinks in terms of, who desires to, and who does MOVE BONES, cares not how many, which way, or how he moves vertebrae, so they crack, pop. He feels them crack and pop, and so does patient. Any MOVE, easier, better, just so it MOVES THEM, satisfies him. That he gets any case well, is an accident, and proves what can be done in spite of him rather than because of him. Rotary, and many other “moves,” do this, including Spears theory.

He who thinks in terms of “adjustment” and MOVES BONES in action, does so with that that HE knows WHERE they should be put, so he proceeds to put them where HE alone knows they ought to be. He pushes bones to correctly align them to a mental imaginary position to meet HIS concept that HE can do ALL necessary. He might as well MOVE BONES ON DEAD PEOPLE

for net result is as effective, except when accidents occasionally happen.

Chiropractor who desires to, has reasoned out true value of subluxation as causative and curative factor, and gives AN ADJUSTMENT, picks ONE vertebra which should be corrected to natural, normal position. He will build his technique to best help accomplish that purpose which produces net Chiropractic result, viz., opening of occlusion; releasure of pressure upon nerves; restoration of transmission of mental impulses between brain and body; AND KEEPS THAT ENERGETIC FLOW SUPPLIED COVERING DAYS OR WEEKS.

Chiropractor KNOWS that HE does NOT KNOW where any subluxated vertebra belongs; he has an approximate idea, but not an accurate one; that accuracy MUST be attained before HEALTH will be a permanent and quick result in any case. He KNOWS only Innate of patient KNOWS HOW to make an accurate, correct, and complete adjustment. He KNOWS that subluxations and adjustments can be made ONLY on *live* people; that he must work WITH inherent life in patient to bring about staying-put value.

Desiring to increase time element between one adjustment and necessity for another, by checking net result of each adjustment to see which stayed longer than others, we began a systematic check on what we did where some adjustments remain longer than others; which made some restorations of transmissions cover days rather than hours, weeks rather than days. We found when we did everything JUST RIGHT, they stayed put. When we were careless, relaxed, and took a "don't care" attitude, they did NOT stay. We began to systematically check detail, correcting each into a much higher efficiency and in exact ratio as we did improve technique of that which is herein described, we found they stayed put and gave us THAT ADJUSTMENT WITH THAT EXTRA SOMETHING. It took six months of deliberate personal work, researching a checking system on our work, before we had whipped ourselves into that form so we could and did step-up staying-put values from day to day, to three days at a time; then a week at a time; then two weeks at a time; and now our record time is one adjustment on many cases.

THE ADJUSTMENT WITH THAT EXTRA SOMETHING is that adjustment made by Innate of patient wherein every detail leading up to delivery of an adjustic concession delivery of force, upon part of Chiropractor; and recoil concussion response on part of patient, must work together to that definite end. Instead of this action being a ONE-MAN action, as would be true with MOVING BONES, it is a TWO-MAN job wherein each is cooperating EXACTLY RIGHT, each to mutual advantage of other; both acting together to accomplish a desired object, each desiring THE SAME thing, viz., ADJUSTMENT OF SUBLUXATION WHICH THE CHIROPRACTOR WANTS corrected, which Innate knows must be corrected, and which Innate is willing to *help* correct.

That ADJUSTMENT WITH THAT EXTRA SOMETHING is KNOWLEDGE that Innate Intelligence contains ALL internal unital intelligent power and ability to master physical and material, when all physical interferences have been removed. It is not our educated belief or feeling or some sort of half-hearted thing — it is KNOWLEDGE grown into WISDOM. An adjustment concussion application, by Chiropractor, is given only to start adjustment concussion processes to come. In a log jam, one "key" log needs to be moved, and forces of jam do the rest. One subluxated vertebra has forces holding it, which Innate cannot loosen; Chiropractor loosens ONE subluxated vertebra, and then Innate Intelligent power-within WILL do all else needed.

As golf is a state of mind; business is a state of mind, so is adjusting a state of mind. You get what you think; for as you think, so do you act. Desire to move bones, in thots, that is what you attain in action. Desire to get an adjustment, thinking that Innate must respond and place it where it belongs, THAT is what you attain in action.

To accomplish this Innate recoil adjustment

- arms of adjuster must be relaxed, except at moment when he contracts to deliver.
- body of patient must be completely relaxed, for we can expect no responsive recoil contractility until such times as it can start from relaxed point to maximum of contractility immediately following contractility of Chiropractor.

- maximum contractility, of Chiropractor, must be reached same split second of time when body of patient has reached maximum of relaxability, two forces opposing each other; one as an invasive force, while other becomes a resistive force immediately following.
- it cannot be accomplished with high-heels, run-over heels, buckling of knees, stiff hip action, bucking outwards of elbows, belly supports on table which defeat its end, including use of any, many, or all "old moves" which have been peddled these many years. No "moving bones" method can accomplish ultimate objective desired. All have been tested, checked thoroly and carefully, and all found wanting.

Instead of moving bones, hoping to accidentally get THE one (which occasionally and accidentally DOES happen), he locates THE ONE (not many) which is subluxated; realizing there is a cleavage which must be increased and a resistance to moving bodies of ONE vertebra between ones above and below that must be decreased. To bring this about, SPECIFIC Chiropractor studies mechanical principles of toggle, which makes little motion do much work; he steps-up speed of recoiling an energy so when delivered upon tip of spinous process of THE ONE vertebra subluxated, he transfers his force INTO that of THE ONE vertebra subluxated; this causes IT to move BETWEEN other two. In exact ratio as he stepped up HIS toggle recoil delivery of force, so has he increased INNATE responsive toggle recoil of patient, so is there increased cleavage and decreased resistance of moving of ONE vertebra between contiguous surfaces of ones above and below.

In transferring energy, upon part of Chiropractor, from waist to shoulders, from shoulders down thru both arms, he will focalize concussion energy thru both arms to hammer head; nail head of other hand, thru shaft of wrist, both to nail point of nail hand, thus delivering to vertebra subluxated in body of patient, so that when BOTH ARMS work jointly, all being in direct contact with tip of spinous process of vertebra subluxated, they will FOCALIZE all concussion energy delivery of BOTH arms to ONE point.

To step-up speed, elbows akimbo must be brot inward; and as they do, shoulders drop into action in such a manner and at

such a time, being properly timed, as to immediately force elbows outward; this forces arms to flop UP AND OFF of back and away from vertebra to which transferred force has been delivered. This "shoulder drop" is attained by body of Chiropractor from waist up, leaning forward so he is just on and just off balance, so that swing of shoulder drop comes from waist downward, rather than a head drop thru and between shoulders.

When this movement is given, rapid as it is, concussion blow of transference must be a short distance, must land, must sock home like a boxer's short-arm in-fighting close-in jab, for actual distance landed by action of elbows and shoulder drop is limited, but well timed.

Properly timed, well delivered, net effect of this delivery is that INNATE OF THE PATIENT recoils and returns transference by sinking body toward floor and then rebounds back; AND IT IS IN THIS REBOUND THAT INNATE OF PATIENT TAKES ADVANTAGE OF COMMOTION AND CLEAVAGE LOOSENING WITHIN TO CORRECTLY, COMPETENTLY, AND ACCURATELY SET SUBLUXATED VERTEBRA INTO NATURAL POSITION, WHICH ONLY INNATE OF PATIENT KNOWS. This is INNATE RECOIL ADJUSTMENT, not given alone or only by Chiropractor but produced intentionally BY INNATE OF PATIENT who is only person WHO KNOWS where it belongs and can place it exactly there. When INNATE makes adjustment, it will stay longer than when Chiropractor attempts to push bones to where HE thinks they belong.

Here is a verification:

December 12, 1950.

"Dear B.J.:

"Following information may not be news to you, but it was a new experience for me. I think it brings out conclusively the principles you have taught so repeatedly. This being true, I know it will be of interest to you. Many times when I had a case that it was particularly painful to adjust, I remarked that I wished I could anesthetize them. I have had many others express same thought. I know now it would not work.

"I have a veterinary surgeon who is very much interested in Chiropractic, and has wanted to see it used on small animals. On Sunday, December 10, he called and told me that he had just had brought into his hospital a cocker spaniel with an injured neck and partial

paralysis of right front leg. He said that X-rays showed what he thought was a subluxation of the axis, and wanted to know if I would come out to see the dog. He had completely anesthetized the dog for X-ray purposes. I went out at once, and we decided the axis was subluxated, the superior articulation was not contacting the atlas, and the inferior portion of the body was to left of median line. "Now the interesting part. I adjusted axis. Remember, the dog is completely anesthetized. Axis moved. We took check X-rays, nothing had happened. Again I adjusted axis, again X-rays were taken, nothing had happened. Again we repeated the procedure with no results. Each adjustment had produced only a momentary twitching of paralyzed leg. That was all. At this point, I thought of what you had taught—that we only set up a concussion force which Innate utilized. In this case Innate could not work because of anesthesia. I explained this to the veterinarian, and made arrangements to see the dog next morning.

"When I arrived next morning, we found by nerve tracing that there was extreme tenderness around lower border of axis. An adjustment removed all tenderness, and restored function to right front leg.

"The next day there was still stiffness in muscles of the neck, but no localized tenderness. Another adjustment restored normal function to neck. The interesting feature to me was fact that no results were obtained while the dog was under the effects of anesthesia.

"I have adjusted many small animals with good results, but this was my first experience with an anesthetized animal, and I think it brings out the Chiropractic theory very conclusively.

"Justin M. Barber, D.C. Ph.C.
Norwich, Connecticut."

DOES HOUR OF DAY MAKE DIFFERENCE IN READING?

Man is taller in morning than at night. This is brought about by continued relaxation at night, separating vertebrae. Man is shorter in evening than in morning. This is brought about by gravity weight compressing vertebrae closer together, longer that gravity weight is on during day.

Readings taken in morning will show lesser number of places and readings less high, on average. Readings taken at night will show one or two more on average, and majority of readings are slightly higher, varying according to degree of chronic subluxation.

Readings will be slightly higher towards noon, after morning's labor with laboring man. After his noon lunch, and hour's rest, sitting or lying, readings will be slightly less.

So long as man is man; as man labors; as man contracts and relaxes; as man labors and rests, and thus fluctuates with varying periods of day, we know no way of avoiding it as a fixed factor to be dealt with in NCM readings.

In our research checks, on cases WHERE NO ADJUSTMENTS WERE GIVEN, there is a permanency in approximate number of places and approximate degree of readings; major always remaining as a constant with difference that it is less after a period of relaxation than when working or under gravity compression, and gradually increases slightly towards evening.

Example: Laboring man.

7:00 A. M. Readings as follows:
 Ax 2L
 5C 3R
 5D 3L
 10D 4L
 3L 5R

Total 17

Same case at 7:00 P. M.

Ax 2L
 5C 3R
 5D 4R
 10D 5L
 1L 3R
 3L 7R

Total 25

In this case, one more reading was observed. Checking many cases, it was observed that greater increase in places and totalities was usually confined to dorsal and lumbar regions; few additions and increases noticed in cervical region. No case, under such conditions, showed ANY place out, nor were any readings reduced in evening, by comparison. Labor, strain, and compression INCREASED invariably.

For these reasons we advise you have each case appear *at a regular hour of day*, that you might check under like conditions, protecting record in readings established as a basis of study for welfare of case. If there were some way this human equation could be ignored or was not of vital value, case could be taken at any time convenient to him. Notwithstanding readings would be more numerous and of higher degrees in evening, it is inadvisable to take case in morning of one day and in evening of next,

for basic standard for calculation would vary so greatly that you would have no fair equitable basis for understanding progress of case.

Under adjustment, same rule applies, but with varying degree of change that follows adjustment. Evening readings are more numerous than morning; they are usually higher; but gradually as morning readings are eliminated, so are they proportionately reduced in evening; as number of readings reduce in morning, so do they at night; eventually to get all gone in morning, so do they fade out in evening.

If your case comes regularly at 8:00 A. M. daily, he will arrive under a like condition day after day. Any observation made one day will tally fairly with that of every other day. On reverse, if you have a case at 8:00 A. M. Monday, and at 8:00 P.M. Tuesday, comparative readings would be different—at its best on Monday; at its worst on Tuesday—other things being equal, and standard established on Monday would not be fair to that of Tuesday, or vice versa. It is better to have cases come at a regular hour each day, every day.

SOUND ADVICE

If NCM and SPECIFIC and SPECIFIC PROGRAM can do what we claim in hands of competent and intelligent users, then every chiropractor should have and use NCM, SPECIFIC and SPECIFIC PROGRAM.

As anxious as we are to have every Chiropractor increase percentage of results, step up efficiency, get worse cases well quicker than previously, we are not so anxious to have him secure an NCM and begin working with SPECIFIC program only to fail and thus reflect injury to himself, his cases, and principle involved.

To that end, then, we suggest following sound advice:

If you do not KNOW Chiropractic philosophy—do not get an NCM.

If you do not KNOW how to give a Chiropractic adjustment—do NOT get an NCM.

If you DO get an NCM without KNOWING Chiropractic philosophy and KNOWING how to give Chiropractic adjustments, one of two things will happen; either you become completely disgusted with NCM; or, IT forces you to study Chiropractic philosophy until you DO know it and you DO learn how to give adjustments until you become proficient.

The NCM will prove how little one knows of Chiropractic philosophy and how incompetent one is to give an adjustment — either condition is hard on Chiropractic unless he is willing and ready to face facts and learn difference.

If you are NOW satisfied that you DO know Chiropractic philosophy and ARE satisfied that you are giving best vertebral adjustments, DO get an NCM.

NCM users work one of two ways — either they listen to what it proves and improve themselves; they soon come to realize that it is best check on their ignorance of philosophy and adjustment; or, they throw it away because they know more than it proves.

Those who know HOW to intelligently use NCM are those who KNOW Chiropractic philosophy and CAN give adjustments. They don't belittle NCM. Show us a BOOSTER for NCM and we'll show you one who knows philosophy and how to give adjustments, regardless of how little else he may know.

So, if you are down on philosophy and adjusting, you can't be up on NCM.

If you are up on NCM, it's because you are up on philosophy and adjusting.

If you are down on philosophy and adjusting and get an NCM you may expect to get busy studying the two you don't know, because the three are inseparable in their demands of efficiency.

CHIROPRACTIC NEUROCALOMETRY

(Prepared for this publication by a scientist who requests
his name be withheld at this time.)

It has been often said that it is easy for someone to say a thing is true because his experiences have shown him that it is true.

It is more difficult to make others believe that a thing is true, because their experiences, or lack of experiences, may have been different, leaving them with opinions too often considered as conclusive. Too many immaterial factors may thrust themselves into basis for such conclusions and act as a barrier to more inductive and deductive reasoning and thus temporarily act as an obstacle to sustained interest.

In order to establish truths upon a common basis, it has been necessary to formulate sciences. By use of scientific methods, we are enabled to prove that our experiences are true just as far as other people are enabled, by reasonable amount of effort and application, to prove same things.

Desire for earnest and honest investigation must first exist before it is possible to interpret with understanding and pave way for acceptance of a thing in its scientific completeness. Unconditional acceptance of anything based upon scientific, demonstrable fact depends primarily upon a knowledge of fundamental factors which, in their aggregate, render evidence as conclusive.

It has long been a problem in Chiropractic profession to develop a workable means by which to arrive at some immediate demonstrable proof of effects of interference with spinal nerve transmission; demonstrable proof that such interference was removed by proper adjustment of causative subluxation, by showing disappearance of its associated phenomena with subsequent elimination of attending symptoms.

With such an organized system; with such conclusive display of demonstrated Chiropractic principles and practice, science should approach all-inclusive health system. After all, scientific worth of any method is based upon results obtained.

In preparing this work standard text books in Anatomy, Physiology, Pathological Physiology and general experimental science have been studied and consulted. It has been primary object in this work to establish basis of a practice which has developed with Chiropractic and since beginning has been inseparable from science and philosophy of Chiropractic, and which was born with application of Neurocalometer in Chiropractic analysis.

In this treatise it is object to submit a concise and comprehensive study into principles of Chiropractic science as they apply to use of Neurocalometer in spinal analysis.

These observations, it will be seen, are an aggregation of fundamental facts, undeviating from subject matter of which they are a part.

THE PROPERTIES OF NERVE STRUCTURE

To understand principles underlying use of Neurocalometer in spinal analysis it is necessary to consider anatomical and physiological interrelationship of structures involved in interference to nerve impulse transmission as well as reaction phenomena resulting therefrom.

Plasticity of physical body through its central nervous system and tendency to gradually yield to an influence is a characteristic of animal life. Entire nervous system is a pathway traversed by currents of energy which, passing over pathway repeatedly, caused a physical or organic yielding of cells tending to bring about a repetition of cell vibration or a reaction to its stimulus.

It has long been established by leaders in Chiropractic and later confirmed by Dr. Geo. W. Crile, eminent scientist, in his exhaustive researches, that reactions which compose life of man and other organisms, are results of inevitable effects produced in a sensitive structure by an actuating environment. In other words, life processes of organism depend upon evolved mechanism by and through which it reacts.

And that man's special mechanism of adaptation is his nervous system which coordinates each part of body with every other part, by means of brain, spinal cord and a labyrinthian network of nerve fibers and peripheral nerve endings.

Developments in sciences of biology, physics, chemistry and physiology prove that this mechanism is merely a highly specialized pathway for transmission of impulses set up by activating stimuli. In higher beings these impulses meet and coordinate or impinge and interfere in a central organ in this mechanism,

brain system, where schemes or patterns are formed automatically according to lines of least resistance which have been established by evolution of organism. Anywhere along this pathway where there is interference a localized dissipation of impulse energy will result, setting up reaction phenomena and disease.

In science of physics, when considered in light of human physiology we learn that in last analysis primal stuff of matter and of energy is electrical in character. Whatever may be superficial aspects of man's form and functions, ultimately they are phenomena of electricity.

With these observations Dr. Crile asks: "Is transformation of energy by which men and animals are enabled to adaptively maintain a state of health maintained through an electro-chemical mechanism? If so, then there should be evidence to show:

- "1. That an electrical energy is produced in body;
- "2. That a current of nerve action, a form of electrical energy, always accompanies passage of nerve impulse;
- "3. That in motor organs electro-motive force of this current varies with rate and extent of energy transformation.
- "4. That when there is no transformation of energy there is no action current;
- "5. That electricity alone, either directly or indirectly, can excite organs and tissues to perform their functions while such is correctly applied;
- "6. That in body are structures well suited to be parts of an electro-chemical mechanism which is capable of performing the work of body; and finally
- "7. That no other form of mechanism is capable of performing this work."

It is an old established fact in physiology of plants and animals alike that there is an electro-negative variation during action.

Bose has demonstrated that electric currents are present in all plant activities, and has shown that life and electric phenomena end simultaneously.

Furthermore, in experimental physiology in studies dealing with nerve currents with an Einthoven string galvanometer con-

nected with an artificial nerve, it has been shown with convincing evidence that nerve action current is identical with electricity.

Williams and Crehore reported that if we regard nerve as an electrical conductor with distributed capacity, we are able to account for many of experimental phenomena and also to predict results of new experimental conditions. It has been shown that speed of electricity on wires is less than speed in free space, and formula for calculating these velocities is well known. Rate of propagation of electrical current in a conductor in form, size and material to a nerve fiber should be, according to these formulae, of approximately same order of magnitude as has been measured for nerve impulse.

As a result of measurements of phrenic nerves of cats and calculations based upon data of microscopic sections of nerves, it has been made possible to construct an artificial nerve whose total resistance and capacity are of same order of magnitude as those of the cat's nerve. In applying break E.M.F. of an induction coil to this "nerve" and leading off to a string galvanometer in usual manner, there were obtained typical diphasic curves almost identical with those obtained from cat's nerves stimulated with same current.

In this discussion we are not to lose grasp of primary principle of Chiropractic philosophy, that with all these properties of nerve tissue, there is of necessity a seat of Innate Intelligence control, exercising a definite, select influence over release of quantitative impulse flow in accordance with demands of processes. If body is operated by a form of electric energy it must be generated and fabricated within body, which must, of necessity, contain mechanism for adequate, continuous production and storage of this energy and innately controlled release of same. This release and distribution must be actuated by demands and needs of an intricate, living organism, through a complete electro-motive apparatus supplying elements for constant reconstruction and maintaining processes for disposal of its waste material.

An automatic mechanism such as man must have an automatic arrangement for augmenting multiple activities of living processes. Metabolism must be maintained; prevention of polariza-

tion of brain battery and renewal of elements of battery. For this purpose blood was evolved. It floods every cell of battery and every element of motor. Mechanism for prevention of brain battery polarization by maintaining difference in potential and changing rate of electric or impulse discharge and its rate of fabrication is not fully explained. Such control is probably generated through a higher force, through a process of multiple proportions and intimately associated with functions of endocrine origin.

Whatever nature of mechanism, it is obviously one of a high order of invisible force supporting life; and expression of metaphysical plan through immutable laws governing living processes, projected through medium of an Innate Intelligence over unimpeded pathways of brain and spinal nerve system.

Recent investigation of properties of nerve tissue function shows that nerve impulse is an electro-chemical form of energy, and it has been demonstrated experimentally that transmitted energy of a nerve may be detected with a display of something of nature of its action at periphery. It must be remembered that nerve structure would be capable of undergoing and does undergo more intensive reactions in vital, living state than would be possible to produce experimentally in absence of living processes with respect to conductivity, sensitivity and all reaction phenomena which would follow interference from subluxation.

THE OLD VERSUS THE NEW

In discussion of new and proven methods question naturally arises concerning efficacy of old system of general spinal adjusting in each case, with prevalent disregard for specific application of Chiropractic principle in the correction of cause of so-called disease. That old system of adjustment possessed a degree of effectiveness cannot be disputed. It carried enough merit to sustain and prove correctness of principles and practice of Chiropractic, until further research and development, which is always inevitable, should place it upon a more demonstrable, scientific basis. Before it was like any system which,

though possessing some merit, is incapable of conclusive demonstration of its *modus operandi*.

With advent of Neurocalometer sailing of an uncharted sea of uncertainties was overcome by use of this compass in defining and prescribing definite lines of procedure in correcting cause of so-called disease. It is now possible to pursue a direct, definite course charted for unfailing guidance in principles and practice of Chiropractic.

It is probable that in old method of adjusting, in which whole spine came in for a general "overhauling" at one time, relief of a more or less limited character was achieved through temporary release, by relaxation, of associated conditions of stress appearing at multiple inferior places along spine where descending impinged nerve fibers emitting through foramen, producing pseudo subluxations through their effects upon surrounding tissue, which reacts by tonic contraction and tension. It is now established that this inferior malalignment is generally secondary to a primary causative interference existing above. Attempted correction of these multiple secondary spinal findings probably allowed a greater release of already greatly diminished impulse flow due to major subluxation or interference above, but such could not be expected to remain permanent unless primary, causative interference is corrected, which was done and is still being done under old system. Such correction in this case is not made intentionally, but too often accidentally.

Upper cervicals were and are still found to be place of major interference and are corrected under old method and, fortunately, in many cases are let alone with good results. This is in spite of an unsystematic procedure which has been replaced by present enlightenment of Neurocalometer, Chiropractor's compass.

THE SCIENTIFIC HEALTH SYSTEM

Chiropractic is based upon four major premises, which are now subject to scientific proof. Quoting from Dr. B. J. Palmer, in his excellent work "Reasons For My Faith," these premises are established as follows:

1. Existence of a vertebral subluxation.
2. Principle that it produced pressures upon nerves and interfered with flow of a force between two given points.
3. Adjustment of a vertebral subluxation.
4. Principle that released pressures upon nerves restored this flow of a force between two given points. The subluxation and adjustment can be proved by spinograph. Location of and effects of subluxation and adjustments can be measured by mechanical, chronic-hot-box heat-finder (Neurocalometer).

Life has been defined as "continuous adjustment of internal to external relations." Let us lend scientific aid in this adjustment.

SUMMARY

Life processes in man depend upon his special mechanism of adaptation, the nervous system, which is constantly empowered to provide coordination between each part of body.

Nervous mechanism is a highly specialized pathway for transmission of impulses necessary to activation of these processes. When there is no interference along this pathway transmission is complete and we have a normal, living process. With interference there is only a partially living process, commonly termed paralyzed function or disease.

Primal stuff of matter and of energy is electrical in character. A form of electrical energy, nerve impulse, flows over nerve fibers, causing transformation of energy through its action current. Nerve structures in body are well suited to be parts of an electro-chemical mechanism, because no other form of mechanism is capable of performing its work.

It is quite natural that nerve force should be identified with electricity, because both nerve force and electricity are known only by their effects. Electricity will deflect needle of a compass or galvanometer. Any form of energy of this nature will heat medium through which it flows, when met with resistance.

Nerves are capable of carrying and exhibiting increased reactions from interference and resistance, since they comprise a mechanism suitable for electro-chemical processes. If these reactions are result of interference to electro-conductivity, then there would be dissipation of its increased energy in form of heat.

Also, with reference to nerve impulses are associated many secondary or pathologic reactions. These may be manifest along nerve pathway in tissue innervated and finally in nerve structure itself. Under such reactions are oxidation, chemical reaction, chemical combustion with its attendant heat.

Neurocalometer in reacting to intensified effects of nerve itself, responds with a quick, decisive "break" in action of its needle. In associated reactions covering a wider margin its response is not so sharp. In latter are vasomotor, chemical and pathological effects. Only measureable effect is that of increased heat.

These principles, for most part, have been already discussed by Dr. B. J. Palmer and later by Dr. Crile. They employed a galvanometer, thermo-couple hookup in their investigations. This instrument, specially constructed for Chiropractic spinal analysis, is used in a slow, gliding technique. Upper cervical region subluxation may exert a great influence upon whole nervous mechanism, because of its close anatomical relationship to decussations and nearby intercranial nerves. Effects here are transmitted along nerve fasciculi to inferior points.

The old system of adjusting is too unspecific and indefinite according to recent investigations and developments. Definite analysis and specific correction is being widely reported from use of recent developments in Chiropractic Neurocalometry.

DO SPECIFIC WORK AND YOU'LL GET SPECIFIC RESULTS

One of drawbacks to an immediate stepping-up of our Chiropractic efficiency in securing quick, permanent results on worse cases, is inability of average Chiropractor to keep from adding to or subtracting from SPECIFIC SYSTEM that which he thinks-he-knows should be added or subtracted.

We are victims of yesterday. We are today because of what we were yesterday. We think today based upon and around thots of yesterday. Given two people trying to practice SPECIFIC work, including students here in school, not knowing any other system than SPECIFIC, will accomplish more, quicker than Chiropractor who has known, been taught, and practiced other systems yesterday. Student will use only system he is now taught. Earlier Chiropractor will endeavor to inject and subtract today with yesterday.

We find sincere and thotful Chiropractors, trying to use SPECIFIC, injecting meric system places of adjustments, especially if NCM finds nerve-pressure heat-interference readings at places other than major.

A practical case: A foundryman strained his back, lumbar region, while lifting a heavy mold. He felt injury in lumbar region. A visual lumbar defect was to be seen. Pain was down there. Chiropractor was using "SPECIFIC". He found a reading at atlas as well as in lumbar region. He adjusted ONLY the atlas and case became well. In process of subsequent checking, patient thot his lumbar region "ought to be" adjusted. Chiropractor could not see why there "was not a lumbar subluxation" a la meric system. To appease patient, he gave an "adjustment" in lumbar region. Patient returned next day with his lumbago back again. Lumbago was adjusted OUT with SPECIFIC atlas. It was adjusted IN with lumbar "subluxation." Chiropractor, SEEING WHAT HE SAW, learned his lesson. He again adjusted atlas and REFUSED to do anything more, any other place, and case regained health and remained so.

There are Chiropractors who use NCM, find several places of readings, in differing localities. They adjust them all, thinking they are doing SPECIFIC work. Their case does not get well quickly. They condemn NCM and SPECIFIC system. If they had strictly followed SPECIFIC SYSTEM and not injected anything more than it lays down, case would have attained its objective.

You can no more take over meric system method into SPECIFIC SYSTEM than you can carry over method of use of NCM No. 1 into method of use of NCM No. 2. There must be a complete divorce from yesterday if you desire to secure work of today.

For this reason we repeatedly made statement, during Lyceum (1930) IF YOU DO WHAT WE DO, AS WE DO IT, YOU WILL SECURE RESULTS WE DO. We know it is hard to out-reason yesterday and in-reason today. We believed meric system correct, and it is hard to teach ourselves that a more accurate system is before us; but step-up in efficiency comes in doing that very thing.

General reasons why Chiropractors will do more or less than SPECIFIC are: their past education leads them to believe that this little is not enough, or, in general, it is not complete without something more being done; or, they listen to patient who influences them to think they ought to have "more for their money," therefore proceed to give "more" and really deliver less.

A careful checkup of reports from field assures us that, if a Chiropractor prefers to mix two different systems, such as meric system and SPECIFIC SYSTEM, it would be better for his cases that he confine himself to one, or other, exclusively. If he believes that meric system can and does locate subluxations (and, according to meric system, it is plural), then he cannot believe in SPECIFIC SYSTEM where NCM locates it (according to SPECIFIC SYSTEM, it is singular). If reverse be true, that NCM locates subluxation and tells when an adjustment should and should not be given, then he should discard meric system. Reports show that where NCM locates major and Chiropractor prefers to superimpose that with meric system, case more than usually reports lowered resistance and a return of many symptoms he formerly had.

It should be obvious that, if THE place picked by NCM IS THE place, then all other places that might be picked by meric system are NOT places for adjustment. If PLACES picked by meric system are THE PLACES, then any place that might be picked NCM, contrary to this, could not be construed as of merit or possessing value for adjustment. SPECIFIC SYSTEM proclaims that NCM locates THE major and ONE subluxation cause; all other readings being misalignments. If misalignments are "adjusted" upon theory that they are SUBLUXATIONS, then subluxations will be made out of them if anything is done upon them. Practically, a case may have eight places of NCM-reading interference. ONE is a subluxation; seven are misalignments. To

"adjust" misalignments is to create seven subluxations and create seven dis-eased conditions even tho eighth otherwise might correct conditions IT causes — this puts us right back where we were before SPECIFIC SYSTEM was advanced to profession.

It would be advisable for each Chiropractor to follow one system or other, according to his breadth of understanding of either, but it is inadvisable to attempt to add to or subtract from either one as a complete system in itself.

THE PAST AND PRESENT VALUE OF "TRANSITIONAL AREAS"

In L. C. C. Bulletin (May, 1932), Dr. ——— purports to set forth an idea as tho it were original; a recent development with which he has been directly concerned — even to letting it appear that HE is its champion, defender of faith, etc. In this contention, L. C. C. knowingly encourage supposition without directly committing themselves.

One by one, article by article is being printed. Facts are brot to light. History is repeated. Chiropractors are beginning to know today what happened yesterday. That's what this "war" produces.

This "transitional area" idea is an effort to

- (a) keep Chiropractic where it was previous to 1923.
- (b) keep it standing still and thus appease those who prefer to be let alone.
- (c) keep it from moving onward and upward in its steady progress to development within itself.

Point by point explanations appear to what is happening, that those who care and desire to know may keep posted. So long as any article misrepresents, denies, or dilutes any CHIROPRACTIC principle or practice, and it is vital that record be kept clear, we shall discuss them, knowing well that people come and go, but PRINCIPLES live.

So far as it is possible, we quote from limited writings of this Chiropractor, as they concern this principle:

"We state and prove that mechanical correction of entire spine brings about a permanency in results obtained by no other method, because a mechanical balance is secured. Every 'specific' user and every major adjuster is confronted today with same problem we experienced before adopting a method that corrects and holds vertebra in place after it is adjusted — namely, correction is only temporary in many cases."

"Where rotation or scoliosis exists involving three or more vertebrae, to adjust but one vertebra in that rotation is, in the majority of cases, to give only temporary relief, for, sooner or later, muscular pull holding other vertebrae out of alignment will again distort one adjusted. THAT IS WHY YOU 'SPECIFICS' HAVE YOUR PERSISTENT READINGS OF CONGESTED AREAS WHETHER IT BE SUPERFICIAL CAPILLARY CONGESTION, AS I BELIEVE IT TO BE, OR NERVE HEAT, AS YOU WANT TO BELIEVE. That is why major adjusters experience recurrence of symptoms after subluxation has been but temporarily corrected. That is why a single vertebra in rotation or scoliosis adjusted over a long period of time when it is temporarily corrected will produce pressure above or below, according to foramen occluded."

"We have taken 26,000 X-rays to prove our contention. What acceptable diagnostic evidence do you have to disprove these records?"

"By same 26,000 X-rays we discovered ten years ago that most frequent transitional area and occlusion of foramen with possible point of nerve pressure was between atlas and axis. You come along ten years later and confine ninety-nine per cent of your endeavors to this area, and then YOU ASK WHY WE DO NOT FOLLOW YOU AND GROW WITH A GROWING MOVEMENT. BLESS YOUR SOUL, WE ARE TEN YEARS AHEAD OF YOU."

"There are other transitional areas in spine just as important as atlas-axis area. (See April Lincoln Bulletin.) While yours is a confining and limited technique, ours is a broader and unlimited technique, which takes into account nerve distribution to entire body. It is true that upper cervical adjusting will produce results in a much wider area than any other region of spine, BECAUSE OF THE VAGUS NERVE DISTRIBUTION. We have long stressed correction in area as being very important, rotation being most common distortion."

Theory presented by P.S.C. (1906) was that every curvature (scoliosis, kyphosis, lordosis, etc.) had a superior point of origin; a center or apex and an inferior or ending of that curve. This was true in direct as well as in adaptative curve, either superior

or inferior to it. This "transitional area" would cover not LESS than three vertebrae and often MORE than three; it might be limited to ONE place or might include SEVERAL; it could be located ANY PLACE where there were "transitional area" subluxations causing a curvature.

Subluxation in a "transitional area" had a twist, kink, or torque to "area" involved, eventually producing a minor local or major general curve which introduced a SERIES of subluxations. A comparison of this OLD idea with idea now being advanced by Dr. ———, will show little difference.

Under this THEORY, there being MANY subluxations, each was to be adjusted until ALL were adjusted out of existence. We not only adjusted most superior vertebra of "transitional area," but we adjusted apex vertebra in that "transitional area" as well as inferior vertebrae of that "transitional area." Gradually we kept working them out and as we did we worked on intermediary vertebrae in that "transitional area" until eventually we hoped to have ALL vertebrae in that "transitional area" in perfect perpendicular alignment with NO "subluxations" existing anywhere. A comparison of this old idea, with idea now being advanced by Dr. ———, will show little difference.

Inasmuch as each subluxation created a "transitional area" to which later there appeared an adaptative "transitional area" it can be readily seen that we had to study spine carefully to know which was first and DIRECT, and which was secondary and ADAPTATIVE, and which we adjust FIRST and which LAST.

Before we got with this theory we were doing (up to 1923) what L.C.C. are advocating today, viz., adjusting any place in spine with idea of adjusting its every kink, twist, or misalignment; to properly align each and every vertebra with each and every other vertebra with hope that we could get them all in perfect alignment so there COULD BE NO pressures or interferences.

In 1910 P.S.C. introduced spinograph. We took spinographs to check this principle to see IF practice as advocated was practical. Some of our profession make much over fact that they have taken over 26,000 plates upon which they now base their conclusions. The P.S.C. has taken over one and a half million since we introduced spinograph into Chiropractic. Had we continued

to rely ALONE upon information given ONLY by spinograph, we, too, would be talking today same language, thots, and ideas previous to 1906.

What DID spinograph reveal? It showed clearly "transitional areas" then; it shows them now. Every spinal column has them. What are they? What value is to be attached to them? Are they causes of dis-ease? Are they sublaxations in fact, or a sublaxation in theory? Can spinograph *show* a sublaxation? Or is what spinograph shows only theoretical and not practical?

In those earlier days we, too, had same convictions that others have now. We moved on; they stood still. We refused to continue to think same thots. They do. We thot then that spinograph could, did, and would show us optically where each and every sublaxation was. Spinograph only depicted malrelationships between vertebrae. We construed all such to be sublaxations IN FACT. Spinograph showed "transitional areas," because it did show an irregularity IN POSITION of a vertebra or series of vertebrae up and down full length of spine, and because they were optically in anything but normal alignment, and because we could now correctly SEE by preference to incorrectly FEELING, we concluded then as others conclude now, that each and every one WAS a sublaxation, and concluded then, just as others conclude now, that each such should be adjusted and put into normal alignment where we thot they SHOULD BE PUT. Out of that grew general adjustment of entire spine idea.

Today picture changes. Spinograph cannot show, prove, or give knowledge of location of ANY SUBLUXATION in fact. SPINOGRAPH cannot bring to our eye any knowledge of location of ANY sublaxation. We once thot it could. We do not think so now. Others still think it does. Others emphasize, as proof of their conclusion, that they have taken X-ray pictures. We base our denial on what is safe to say covers over one million and a half X-ray films PLUS much other additional Chiropractic information secured from other CHIROPRACTIC sources that is vitally essential to settle ANY Chiropractic sublaxation conclusion.

Could you, looking at two spinographs, tell which one, or whether either, was taken of a live man or dead? We present TWO spinographs. Which was taken of a live man; which of a

dead man; or were both alive or dead? A spinograph is as reliable, in recording misalignments in dead man as live one. An X-ray can radiograph a fracture in dead man as well as live one. For this reason, spinographs do NOT record SUBLUXATIONS. SUBLUXATIONS exist only in LIVE people. A Chiropractor cannot ADJUST a DEAD man; there is no SUBLUXATION to adjust; and even tho he thot he could, it would do no good, for LIFE isn't there.

Spinograph records POSITION of segments. It can do this as well in dead as living. We have taken both dead and living, and it is effective in one or both, for nobody can tell difference, by plate or film, whether it was taken in life or death. NCM is useless on a DEAD body. It IS applicable and practical and CAN BE USED on LIVE body. It ALONE proves presence or absence of LIFE; interference to flow OF LIFE; and after an adjustment has been given TO LIVE MAN, it proves whether IT WAS adjustment or not, by whether it restores transmission OF LIFE or not; or whether pressure was increased and transmission decreased, or not.

We could pull a dirty trick on those who judge cases by spinographs by handing them one taken from DEAD BODY. They wouldn't know difference. But YOU CAN'T FOOL NCM. A dead body universally is COLD. NCM READS COMPARATIVE heat. It reads active interference between one spot where there is GREATER heat than another. Dead bodies are COLD ALL OVER, absorbing only temperature of room they are in; generating no INTERNAL independent heat, for INTERNAL FLOWING MENTAL IMPULSE LIFE which MAKES INTERNAL HEAT, is absent.

Any conclusion reached by spinographs alone is a per cent conclusion and is only that per cent safe. NCM is required to give THE LIFE conclusion, and adjustment is third angle to Chiropractic conclusion.

Many went to P.S.C. back in days when we taught that ANY and EVERY irregularity OF POSITION that could be felt BY PALPATION OR SEEN WITH THE EYE from spinograph, automatically constituted A SUBLUXATION. We have long since outgrown that idea, realizing that SOMETHING MORE than

abnormal position IS NECESSARY to make a SUBLUXATION in fact. Others still cling to that impossible idea that an irregularity OF POSITION ALONE constitutes all and EVERY element that makes it a subluxation IN FACT. We have gone FAR beyond that. They are either unable to think beyond that line, or they have no means at their command to prove beyond that line, or they are too set in their opinions to desire to progress beyond that line. It matters not WHY—they stood still and balance march on developing keener lines of discrimination to which they have not yet arrived.

You can be right or wrong on one or one million films. One spinograph or millions show irregularities in position of vertebrae. No one or one million could or do SHOW A PRESSURE UPON NERVES, OR AN INTERFERENCE TO TRANSMISSION OF MENTAL IMPULSE SUPPLY. Spinographs show what they show; nothing more, nothing less, viz., ABNORMALITIES OF POSITION. They do not show LOCATION OF PRESSURES OR INTERFERENCE TO TRANSMISSION OF LIFE.

If a spinograph shows abnormal POSITION and there is NO PRESSURE OR INTERFERENCE at that location, it is NOT a subluxation. If there IS pressure upon nerves and an interference to transmission, even tho spinograph shows NO abnormality of position, THEN IT IS A SUBLUXATION IN FACT.

Every "transitional area" has misalignments. It is impossible to find one that hasn't. Are misalignments subluxations? In ancient Chiropractic theory, yes; in modern fact, no. A SPINOGRAPH CANNOT REVEAL A SUBLUXATION. IT DOES REVEAL MISALIGNMENTS. There is a vast difference between misalignment which EVERY spinograph will show, and a subluxation which no spinograph CAN show. It is difference between theory vs. fact; failure vs. success; opinion vs. knowledge; previous to 1910 vs. since 1910; fingers and spinograph vs. NCM.

A SUBLUXATION is any vertebra which is out of alignment with its co-respondents above and below.

- which DOES occlude a foramen
- which DOES produce a pressure upon nerves
- which DOES interfere with a normal quantity transmission

of mental impulse supply between brain and body, via spinal canal, cord, and nerves.

Spinograph CAN prove "which is out of alignment" and "which does occlude a foramen"; but it CANNOT prove "which DOES produce A PRESSURE upon nerves" and "which DOES INTERFERE WITH A TRANSMISSION of mental impulse supply" and therein lies difference in opinion of conclusion of those who KNOW that it does none of these. NCM proves "which DOES produce a PRESSURE upon nerves" and "which DOES INTERFERE WITH A TRANSMISSION of mental impulse supply," but CANNOT prove "which is out of alignment" and "which DOES occlude a foramen" and therein lies difference in opinion of conclusions between some and those who *know* it does prove only TWO of essential FOUR conclusions.

Beginning with 1895, we thot fingers could find subluxations by palpation. Spinograph (1910) showed our fingers were often incorrect. Previous to advent of spinograph, we taught that fingers could find ANY and EVERY irregularity of position and these constituted subluxations. After advent of spinograph we taught the same principle with correction that often spinograph would prove mistakes of fingers. Up to 1923, we taught that ANY and EVERY misalignment that spinograph could find, DID constitute a subluxation; that "transitional areas" contained several such. Spinograph proved IRREGULARITY OF POSITION; hence we concluded it automatically proved all theoretical elements necessary to make it a subluxation.

Fingers, in palpation, CAN prove irregularity of position. Many today do not rely upon fingers. They have progressed BEYOND FINGERS TO SPINOGRAPH. Spinograph, optically, CAN prove misalignments of position. This many admit. BUT NEITHER FINGERS NOR SPINOGRAPH CAN OR DO PROVE EXISTENCE OF OR LOCATION OF PRESSURE UPON NERVES OR AN ACTUAL INTERFERENCE TO TRANSMISSION OF MENTAL IMPULSE SUPPLY. This some Chiropractors will NOT admit, because to do so automatically demands SOMETHING MORE THAN FINGERS OR SPINOGRAPH—THE NCM—and this they do not care to affirm. Therein lies difference in conclusion of judgment between believing spinograph shows enough to be reasonably safe and use

of ADDITIONAL KNOWLEDGE to KNOW location of CAUSE of disease and its cure, to be certain.

Fingers and spinograph are effective in proving WHAT THEY PROVE, ON A DEAD MAN as they could on a LIVE man. Fingers and spinograph both prove MISALIGNMENTS on DEAD men; but neither proves presence or absence of A SUBLUXATION. Only LIVE man can have CAUSE AND CURE of disease. To establish any conclusion, equally as effective upon dead man as live man, is to assume there is no difference in principle or practice between dead or living. SOME conclusions are safely made on DEAD man. Others can be safely made ONLY upon LIVE man.

NCM clears that missing link that connects information made upon dead bodies and those made ONLY upon living bodies. Some are reaching conclusions just as sound on dead as on living. P.S.C. is NOW connecting information that CAN be gained on dead or alive (spinograph) with that applicable only to LIVE man (NCM).

Palpation and spinograph determine locations of irregularities OF POSITION of vertebrae as well on dead as on live man. THE NCM NOW DETERMINES EXACT LOCATIONS OF PRESSURES UPON NERVES AND WHERE INTERFERENCES TO TRANSMISSION OF IMPULSES EXIST, AND THUS ESTABLISHES CONNECTING LINK BETWEEN THE CAUSE AND CURE OF DIS-EASE IN LIVING MAN AND ABSENCE OF THESE CONCLUSIONS IN DEAD MAN. It is regrettable that some permit their prejudices to NCM to prevent their admitting this obvious fact.

When NCM is competently and correctly used ON LIVING BODY, on "transitional areas," it will prove or disprove whether there is or is not pressures upon nerves, interfering with transmission of mental impulse supply at those places.

When spinograph is used and it finds a "transitional area" it is then necessary to use NCM to find whether there is or is not pressure upon nerves, or interference to supply of mental impulse, at that area. If there is *no* pressure or interference at a "transitional area," it is NOT a subluxation. If there IS pressure and interference at "transitional area," it IS a subluxation. NCM

proves whether there IS OR IS NOT interference to transmission of mental impulse supply at or between "transitional areas." It makes difference between snap judgment on A PART of CHIROPRACTIC information or knowledge based on ALL of it. It makes no difference whether a man has taken one, twenty-six thousand, or a million spinographs. If BOTH means are used, it makes no difference how many or how few exposures he has made. Number of plates does not determine ESSENTIAL ELEMENTS WHICH MARK DIFFERENCE BETWEEN HIM WHO IS A CHIROPRACTOR AND PROVES IT, AND HIM WHO THINKS HE IS AND TRIES TO MAKE HIMSELF BELIEVE HE PROVES IT WITH A LIMITED USE OF A LIMITED NUMBER OF ELEMENTS WHICH CONSTITUTE FULL UNDERSTANDING OF COMPLETE USE OF CHIROPRACTIC PRINCIPLE AND PRACTICE.

NCM has PROVEN that practically ALL "transitional areas" are NOT subluxations in fact; they do NOT produce pressures upon nerves; do NOT interfere with transmission of life force flow between brain and body as existing in LIVING bodies; are NOT cause of ANY dis-ease and no amount of so-called "adjusting" them would get anybody well of anything anywhere located in body.

To "adjust" at each and every irregularity of position of a vertebra, as found in a "transitional area" established to be such by spinograph, does NOT open ANY occluded intervertebral foramen. Such does NOT exist at such places. Neither does "adjusting" at "transitional areas" restore transmission of ANY mental impulse supply if there IS NO interference at such places. We at P.S.C. researched this back in 1923. Others haven't learned this YET; neither do they desire to learn it, preferring to stand still, if by so doing they hope to deny NCM. Both prefer to work with same idea up till 1923, even tho long ago proven unsound and untenable.

Position of some is that when they find a "transitional area" they assume it contains ALL elements necessary to make it a Chiropractic subluxation. So they find themselves ASSUMING much, PROVING little; writing about what they assume, PROVING NOTHING.

Misalignments in "transitional areas" will be found without being subluxations. Subluxations will be found without being in a "transitional area." WHICH IS WHICH, IS AN ESSENTIAL THAT MUST BE DEFINITELY, ACCURATELY, AND POSITIVELY SETTLED FOR ONE TO APPROACH SCIENTIFIC WORK AND DELIVER A POSITIVE HEALTH SERVICE TO THE SICK.

To deny two essential Chiropractic elements (pressure and interference) as not being present, does not explain why they ARE present. Neither does it explain, being present, why they are absent in other irregularities or misalignments. Neither does it explain, having abnormalities in position of vertebrae, what should be done for them to reestablish them in normal alignment thruout entire spine, which IS the thing some propound in their premise.

We, who so radically differ from them, desire to establish that complete, full spinal alignment, as much as they. They want to do it SPINOGRAPHICALLY. We want to do it CHIROPRACTICALLY. We confine our work exclusively to full and complete satisfaction of EVERY CHIROPRACTIC ELEMENT IN THE CHIROPRACTIC PRINCIPLE AND PRACTICE.

Previous to 1923, we thot every case had MANY subluxations; that each and every "transitional area" had several or many subluxations. This was our working THEORY. Since 1923 we KNOW where, when, and how ONE subluxation is CAUSING EACH AND EVERY MISALIGNMENT IN EACH AND EVERY "TRANSITIONAL AREA." Previous to 1923, we thot we had to adjust EVERY irregularity in EVERY "transitional area" to straighten entire spine. Recovery was usually a SLOW process. Since 1923 we KNOW where, when, and how to adjust ONLY subluxation which IS such IN FACT.

Automatically, each and every irregularity and misalignment, in each and every osseous "transitional area" disappears as every OTHER symptom disappears in any OTHER soft tissue part of body WHEN ITS CAUSE HAS BEEN ADJUSTED. Instead of causes being multiple, they are singular. Instead of subluxations being frequent, they are scarce. Instead of being everywhere, they are in ONE place. Instead of being general, they are specific.

When THE SINGLE CAUSE is correctly adjusted, multiple symptoms of the osseous misalignments found in "transitional areas" disappear; thus the entire spine is straightened thruout its entire length; not by MUCH done, but by LITTLE; not at MANY WRONG places, but at ONE RIGHT place. Recovery is usually a RAPID process.

(For more elaborate explanation of this principle, see "ALL SUBLUXATIONS ARE MISALIGNMENTS; BUT MISALIGNMENTS ARE NOT SUBLUXATIONS," THE HOUR HAS ARRIVED, Vol. XXIV, Palmer, 1950.)

Two issues stand out prominently as regards others' position; they deal with A PORTION of four Chiropractic elements in Chiropractic principle and practice, but try to reach a full and complete conclusion working with only two of the facts. They conclude, in 1932, on old ideas proven untenable, unsafe, and unsound as applied to all people under all conditions at all times. They "adjust" many places and occasionally succeed when if they knew WHERE, WHEN, AND HOW to adjust, they would very materially step up efficiency in largest percentage of cases.

It is hoped others will see light of modern research and lay aside stubborn personal pride of position and opinion to realize there is more at stake in being of greater service to sick than in sticking to a theory unworthy of prejudice or pride. Wise men change opinions; principles always remaining true.

After above was written, we wondered if we had told some Chiropractors anything they didn't know. We came to conclusion we hadn't.

Some DON'T like NCM. They are prejudiced. They don't know why; neither can they give reason why they should be. However, it DID give an opportunity to present clearer explanation of WHAT CHIROPRACTIC IS; IS NOT; WHAT IT DOES AND DOES NOT DO; AND WHEN IT DOES IT.

Are Majority of Chiropractors obsolete? ANY Chiropractor is CHIROPRACTICALLY OBSOLETE who ignores, omits, forgets, and overlooks to consider, (a) pressure upon nerves, and (b) interference to transmission of mental impulse supply as a part of essential and necessary elements to be recognized, considered, studied, and worked with in question of cause and cure

of dis-ease. That some have ignored them, is obvious. That some ignore NCM is equally obvious.

“HOW MUCH DOES AN NCM COST?”

In appearing before groups of Chiropractors and explaining this new, scientific, step-up system in efficiency and reduction in time essential to get cases well, Chiropractor will ask:

“How much does an NCM cost?”

“How long does it take to learn technique?” — seemingly holding innocent that once he has paid his fee and holds a lease to an NCM; has it in his office and glides it up and down a back; after he has had a few lessons, he, too, can duplicate this scientific step-up in efficiency and reduction in time essential to getting cases well.

That which we call SPECIFIC work is now an all-around, complete, builded SYSTEM; each part fits into all other parts; no one part can be omitted or ignored; neither can one element be slighted or glossed over shoddily.

Here are some of elements:

- (a) At least two NCM No. 2 models, an adult and a baby.
- (b) Carefully checked, thot-out detail in use of NCM, such as proper cupping, keeping detectors clean, VERY slow gliding, concentrated observation, and thinking when reading.
- (c) A spinograph equipment, or at least access to one; to be able to have EVERY case spinographed at such place or places as are needed to give accurate information as to position of subluxation.
- (d) Building a daily record; keeping pre and post check total values; a study of them constantly.
- (e) This record gives accurate knowledge of where, when, and how to adjust case to do least to secure greatest.
- (f) Following implicitly guides such information reveals.

(g) A constant study of case record which is a daily observation of what is consistently happening in building or destroying value in that case.

(h) A scientific checking on detail to prevent wrong methods giving wrong observations; a searching exactness of findings to prevent careless interpretations; an honest seeking of facts and a fearlessness to face them when you see what you see.

(i) A genuine, very snappy, blow-landing, toggle recoil, returning an Innate adjustment, producing staying-put values of days or weeks.

(See "WHAT IS MEANT BY A BETTER QUALITY ADJUSTMENT WITH STAYING PUT VALUE?" — "ADJUSTMENT WITH THAT EXTRA SOMETHING?" — in *The Hour Has Arrived*. Vol. XXIV — Palmer, 1950.)

(j) A constant checking on yourself to increase time between adjustments to produce a highly developed efficiency in delivery of adjustment.

(k) Ignoring all influences cases try to force a Chiropractor to listen to.

(l) Refusing to over-adjust as to more places than are necessary, and at times when none such is needed.

(m) A definite adherence to this as an inclusive principle, to exclusion of any and all other methods of practice.

(n) A positive refusal to adjust any or all other places than one your record reveals is only one that should be.

(o) Train average negative mind that it will naturally, habitually, and positively eliminate out of practice action any and all influences that tend to include foreign ideas and methods which automatically exclude internal health values.

That SYSTEM, competently followed, will deliver HEALTH.

Some of us have for years understood that NCM not only proves scientific involved questions in our profession, but we have understood it does more — IT DISCIPLINES THE POS-

SESSOR TO EXTENT THAT HIS EGO IS LOST IN THE FINDING OF HIMSELF. Not all Chiropractors have developed themselves to where they are finding themselves thru constant desire on their part to reach that state in their consciousness.

NCM brings to surface, from within, real Chiropractor; something that would otherwise lie dormant, not only for years but perhaps always, never made manifest, if it were not for disciplining NCM forces him to develop.

In disciplining himself (thru working with NCM forcing him to become more efficient and proficient), Chiropractor gives to humanity a great need as well as becoming a great part of posterity. He little realizes that in self discipline, he is leaving something behind for all to benefit from; but at same time he gives to himself development that should he not strive in working with NCM, he would lose great part of himself in world of things accomplished.

NCM takes out of Chiropractic that which many Chiropractors have failed to do, viz., PERSONAL side of Chiropractic in placing HIS NAME AND PLACE IN LIFE before he places CHIROPRACTIC in rightful place. Once Chiropractor sees how thoroly NCM scathes him and tries him almost beyond resistance, and almost makes him give up struggle as not worth while, and then how, thru it all, brings him to a better understanding of Chiropractic and its principle, he then urges others to attain same objective, realizing only thru this crucible will they begin to understand all that Chiropractic, in its magnitude and purity, stands for — as well will they begin to find themselves in science.

We still have those amongst us who place themselves first, Chiropractic second; who use Chiropractic to boost themselves. NCM takes this conceit out of ourselves. It shows us how little we are and how much IT proves to us how little we know. Chiropractic profession is dividing into those two groups; personal fellows growing fewer and smaller; professional fellows growing faster and larger. That is ONE realization that many secure. They follow persons too much and profession not enough. NCM, SPECIFIC work shows how to reverse themselves, find themselves, to place CHIROPRACTIC above themselves or any other PERSON.

ELEMENTS AND NECESSARY SEQUENCE OF
THE "SPECIFIC"

1. The sincerity of purpose, honorable intent, will to go in, and courage to go thru.

2. The ability to see what you see and not be afraid to see it after you have seen it; and to know how to think about what you see.

3. The plasticity to evolve when evolution is in process and is forthcoming; and to change as changes come. And the exercise of judgment which permits you to see evolution as evolution and not as revolution.

4. To be a Chiropractor, understanding boundless horizon and exacting limitations of a simple principle; and to so endeavor to develop your thought and action that you seek ability to perfect practice accordingly.

5. To be a Chiropractor and to define and confine Chiropractic to your head, heart, and hands; a patient, subluxation, adjusting table, NCM and spinograph — nothing less than that being practical; anything more than that being unnecessary.

6. SPECIFIC refers to specific and definitely known LOCATION OF INTERFERENCE, determined by NCM No. 2, rather than mental determination by digital palpation using meric system, etc.; or medical history of symptomatology, pathology, or other diagnosis.

7. SPECIFIC includes a specific and definitely known POSITION OF SUBLUXATION, as determined by spinograph, rather than fingers-mental deduction.

8. Detectors MUST be COMPLETELY cupped so that no external air can possibly get into cupped areas while reading is being made. Different opinions prevail as to DEGREE OF PRESSURE during reading. Some think to merely glide them over surface of skin. This is dangerous, for contours of neck and possible motions of head permit external air to penetrate, which would make no two readings exactly same. Others think it necessary to DIG IN FORCIBLY and vitally hurt patient being read. Between very light surface reading and digging in hard is a reasonable degree of pressure sufficient to keep FIRM CON-

TACT with exclusion of all external air, prohibiting external air and permitting perfect continuous contact. Done right, no matter how often read, readings should be same. An observation shows that we personally use a heavier pressure than 90 per cent of profession and a lighter pressure than 10 per cent.

9. Detectors **MUST** be kept clean so they will absorb nerve heat beneath skin surface, along both sides of vertebral column. You should form a habit of using a fairly soft, **DRY** tooth brush, brushing **BEFORE** reading, **DURING** a full length reading, and **ONCE MORE BEFORE** reading cervical region. Form habit of brushing **AFTER** the completion of each reading. A majority of "inability of NCM to read correctly" of NCMs referred back to us "for repairs" or ship-backs, is because they are **NOT** clean. We clean them and they work perfectly.

10. How fast should a reading be made? How fast is "fast"; how slow is "slow"? It is hard to measure human qualities in feet per second. A general safe rule is: go as slowly as you can and still keep moving. Majority of NCM technicians **READ TOO RAPIDLY**. In doing so, they read mean line heat into picture as nerve-heat interference-break readings.

- (a) A mean line heat read too rapidly will show up as a nerve-heat interference-break reading.
- (b) A MEAN LINE HEAT READING READ VERY SLOWLY WILL PROVE ITSELF TO BE A MEAN LINE HEAT READING — JUST WHAT IT IS.
- (c) A nerve-heat interference-break reading, read rapidly, will exist for what it really is; that which you seek in information, you won't find; hence condemnation of NCM and SPECIFIC.
- (d) A NERVE-HEAT INTERFERENCE-BREAK READING, READ SLOWLY, WILL GIVE YOU A DISTINCT NERVE-HEAT INTERFERENCE-BREAK AND THAT IS WHAT YOU SEEK, IN INFORMATION; HENCE COMMENDATION OF NCM AND SPECIFIC.

Your record should be based on **SLOW** nerve-heat interference breaks, which will disappear under adjustment, if adjustment is correctly given.

OUR READINGS ARE, ON AVERAGE, ABOUT TWICE AS SLOW AS MAJORITY OF NCM USERS.

11. In reading cervical regions, one hand should be on forehead of patient with a posterior pressure, while other holds NCM on neck and has an anterior pressure — THE TWO PRESSURES OPPOSING EACH OTHER — thus keeping a firm contact with detectors. This also prevents patient from gradually moving head forward as you press forward, which action separates detectors from perfect cupping.

12. There is a special detail in technique in upper cervical that demands especial mention. More superior we glide, more vital and more particular location becomes, demanding more exacting care, thot, and attention.

The detectors should ALWAYS be at RIGHT ANGLES to PLANE OF THE SURFACE BEING READ, with single exception of space between atlas and occiput. As we gradually round ANTERIOR curve of neck region, we gradually rotate detectors around circle, so that when we reach atlas we are now pointing anterior and superior; we now direct detectors on a direct angle to get detectors, as it were, up in AND UNDER occiput, as tho we were trying to get detectors up IN BETWEEN ATLAS AND OCCIPUT — and that is exactly what we are trying to do, for we want to get a superior atlas reading if there be one. A hesitation, for a few seconds, with a firm, steady pressure, once we reach there, gives us a reading if there be one, for needle will break back if there be a nerve-heat interference reading. In this reading, we never run UP OVER THE OCCIPUT; to do so is to read bone heat, which defeats objective we need to know.

13. Every detail is builded into a perfect performance; each essential for a definite reason; all to end of a score in result that makes each detail score in sum total of that result.

Take gliding motion, itself: method of holding NCM, in itself, while a detail, leads to a steady glide and that leads to a definite result of reading OUT mean line heat and reading IN nerve-heat interference-reading. Thumb rests BEHIND and beyond center of rear of NCM; first finger rests ON TOP on outer front rim of NCM; second finger grips around front of body of galvanometer portion of NCM; third finger rests UNDERNEATH galvanometer

portion. First finger presses downward, when gliding downward; meanwhile third finger below creates a STEADY glide and keeps you from jerking movement. Second finger and thumb create a steady grip and keep you from losing NCM out of your hand. Third finger below presses upward, when gliding upward; meanwhile, first finger above creates a STEADY glide and keeps you from jerking movement. It is important that glide BE STEADY — NOT JERKY. Cervical readings are done with single-hand-grip, using only one hand holding NCM, other holding head. Inferior back region, from 7th cervical inferior, is done with two-hand grip, in which thumbs overlap as well as fingers in front.

Keep fourth and fifth fingers drawn well back from under NCM so they will NOT touch skin of case. Any heat transference from between your hand and skin of patient will give an artificial heat reading which would give a non-consistency reading where two readings would be alike.

We have already said about mean line heat readings and nerve-heat interference readings, neither one should be rapid. Reread that section NOW.

14. In making readings, gliding slow, make one, continuous, steady glide. In our personal readings, here is our technique: we start at first dorsal, make ONE steady, downward, slow glide from first dorsal thru to sacrum. Rarely, but occasionally, we may break this entire stretch into two sections. If we do, we DO NOT GO OVER IT MORE THAN ONCE, unless and only when we may be in doubt; BUT WE AIM TO NOT BE IN DOUBT THE FIRST TIME. We concentrate and glide correctly THE FIRST TIME. Having reached our interference factors below, we start at seventh cervical and make ONE steady, upward, slow glide from seventh cervical thru to atlas. Rarely, but occasionally, WE DO GO OVER IT MORE THAN ONCE, only when we may be in doubt; BUT WE AIM TO NOT BE IN DOUBT THE FIRST TIME.

15. Keep a daily record. Sum up your daily pre and post check totals. Do this daily. Keep a daily separate sheet record of every "break" reading in the entire spinal column. Check daily only on places of interference, after first day. Make a

PRE-adjustment reading. Give your adjustment, if reading justifies, at major place. Make a POST-adjustment check, only on places of interference. Keep these two records on that day's sheet, side by side. In this way you can KNOW what results you got from THAT adjustment at THAT place in THAT way on THAT day.

Next day, when case comes, repeat process. Arrange records in a neat, systematic manner, so that your eye can quickly review record of previous days.

On subsequent days, make a PRE-adjustment reading. Find out what was carried over in an accumulative constructive survival value from day before. See if you carried over some reductions at some places, from day before. Give adjustment IF major interference is two points or more. Do NOT give an adjustment IF it is less than two points. Make POST-adjustment check. Keep these two records on that day's sheet, side by side. COMPARE THIS DAY'S RECORD WITH YESTERDAY'S RECORD.

Repeat this process every day, against same interference of next day. Check all interferences of previous days against interferences of last day. See what common, general average is accomplishing. Once in a while review entire record; study daily average, weekly average; KNOW what is taking place.

When any one day's PRE-ADJUSTMENT CHECK shows a general average WHICH IS LOW, be careful. Here is when you can easily OVER ADJUST. Better NOT adjust than to feel you ought "to do something" and then find next day you have OVER-DONE, and set your case back, and made him worse.

Do all this carefully, correctly, competently, and YOU can tell THE PATIENT of improvement made, or loss of it; rather than having PATIENT tell YOU about symptoms, pathologies, diagnoses, how he feels, etc.

16. Specific predetermines by evidence location, position of subluxation existing, causing interference — preferring ONE subluxation.

17. Specific compilation of researching evidence suggests one multiple interference rather than many local interferences scattered up and down spinal column.

18. Its greater, quicker results on acute or chronic, mild or severe, old or young, justify one major, rather than many minors; or one major and several minors.

19. SPECIFIC is one ADJUSTMENT ("the adjustment with that extra something") of one specific character, at one place, rather than various diversified technique "adjustments" at multiple places, daily.

20. SPECIFIC is one ADJUSTMENT, one place, having a staying-put value ("the adjustment with that extra something") covering several days or weeks; rather than many "adjustments," many places, daily, few of which stay put 24 hours.

21. SPECIFIC makes possible that ultimate Chiropractic objective of one continuous flowing of mental impulses, covering a continuous flow for days or weeks; rather than many local flows, flowing spasmodically, temporarily — the pressures of which re-occur.

22. SPECIFIC presents a marked reduction in time necessary to recovery, rather than drag out a case for months or years.

23. SPECIFIC proves that we ADJUST less frequently ("the adjustment with that extra something"), but more certainly, to consistently get case WELL once and for all; again, "well" again, sick again — maybe to ACCIDENTALLY get well or to leave them permanently sick; where health is not AN ACCIDENT in spite of us rather than because of us.

24. Normal right mixture of all above tells us when not to ADJUST (the adjustment with that extra something); that a daily "adjustment" on many places is injurious and that it is actually dangerous to "adjust" so many places so frequently, when SPECIFIC proves none was needed, demanded, or justified.

25. That it is important to know WHEN to give an adjustment, is obvious. An adjustment undoes what a subluxation does. If an "adjustment" were given when NO subluxation exists, it would not be an adjustment, but could create condition for which an adjustment was necessary. So, obviously, to know WHEN NOT TO GIVE an adjustment is more vital than to know when to give one. Up until advent of NCM, Chiropractor had no way of

KNOWING when to and when not to give an adjustment. He reached conclusions by thinking upon symptoms, pathologies, histories, diagnoses, complaints of case and use of his studies all being formed into an opinion which could just as easily be wrong as right. He did not KNOW on which day THE PRESSURE AND INTERFERENCE WAS PRESENT. NCM supplies this absent link. Its use supplies THAT important link of fact.

OVER-ADJUSTING has been a dominant danger. It has lurked thruout years. It has caused more harm than adjustments did good. Chiropractors have restored health. They have also wrecked lives. We did best we could with knowledge at hand. If subluxations caused sickness, "adjusting" at times when no subluxation existed, was creating one. Today, we give ADJUSTMENT when one DOES exist. This prevents OVER-ADJUSTING. As a result, our cases get well faster than before, because we save time, to restore health, where before we made them worse.

OVER-ADJUSTING can be accomplished in three ways:

- (a) Adjusting too many places; in one spine, at one time.
- (b) Adjusting only one place too frequently, at such times and places when it was not a subluxation.
- (c) Adjusting a vertebral subluxation too far in any direction.

In first condition, case will be retarded in time of recovery, if improvement is noticeable at all. In second condition, net results will be observed by raising of readings, giving an increased total in post-check. In third instance, it will be observed in reversal of direction of pressure. Example: Case comes in with a 2-left and goes out, or returns tomorrow, with a 2-right reading. This proves you adjusted too far, reversed pressure, therefore reversed reading.

Adjust ONLY subluxation that IS major reading. Adjust it ONLY when it IS a two-point reading, or more. Adjust it only far enough to give a clear post-check reading. Follow thru consistently and you step-up results on worse cases, with quicker results, and not create backward tendencies in recovery of case.

(See chapter under heading of "OVER-ADJUSTING" in THE HOUR HAS ARRIVED, for more information.)

26. SPECIFIC proves KISS "adjustment," where Chiropractor comes down lightly, indents skin, deliberately draws his hands away quickly, asks patient "Did it move?" — repeats this daily, prayerfully hoping this case gets well, is not an ADJUSTMENT. Sooner or later, this man sets himself up as a standard of "limitations" of application of Chiropractic principle.

27. SPECIFIC proves a TREATMENT "adjustment," where Chiropractor stuns "subluxations," many of which he finds, jars them into a paralyzation. He is a hit-and-run adjuster; feels highly delighted with his work; wonders why his NCM doesn't show a change, why his case doesn't show permanent improvement; and finds it necessary to keep case coming month after month. Sooner or later, this fellow's NCM goes up on shelf and he installs radionics, etc. He becomes a mixer because he has found Chiropractic to be "limited" in practice.

28. SPECIFIC proves a SHOVE-AND-A-PUSH "adjustment," where we want to feel something "move," want to hear something "crack," think WE know where IT ought to be put, and proceed to put it there, is not AN ADJUSTMENT. This Chiropractor wonders why his case gets better, gets worse, and might get well by accident; but leaves him up in air as to what actually happened. He knows Chiropractic is right, because it occasionally works.

29. SPECIFIC proves AN ADJUSTMENT-ADJUSTMENT, where we deliver a light, quick recoil concussion of force, letting INNATE absorb and recoil in retaliation; knowing that INNATE will ADJUST to correct normal position where it belongs and will best stay for longest possible time, IS an adjustment. This Chiropractor works at location and position and with delivery by intention; checks and secures what he, as well as patient, wants, because all is done in cooperation WITH INNATE rather than in opposition to INNATE. This Chiropractor is constantly and severely checking HIMSELF.

30. Then there is that "ADJUSTMENT WITH THAT EXTRA SOMETHING," which has become a habit; he has arrived, attained; works deliberately, and knows how to secure that which he wants, day after day, on case after case. This man couldn't be side-tracked from Chiropractic if you gave him medical armamentarium.

31. SPECIFIC proves necessity of checking each day's readings, competently, correctly, accurately; to watch, see, and know that you either have or have not a reading, to end of preventing ANY possible over-adjusting; for more failures are because of this than incorrect adjusting.

32. SPECIFIC proves necessity of keeping daily record, systematically recorded, so that it can and will be studied, that you may at all times know the pre and post daily check values; to know progress of your case analytically, rather than be compelled to depend upon caprices of reports of case on possible or improbable history.

33. To accomplish this INNATE recoil adjustment with "that extra something"

- the arms of adjuster must be relaxed, except at split-second moment when he contracts to deliver;
- the body of patient must be COMPLETELY relaxed, for we can expect no responsive recoil contractility until such times as it can start from maximum relaxation to maximum of contractility immediately following contractility of Chiropractor;
- the maximum contractility of Chiropractor must be reached same split-second of time when body of patient has reached maximum of relaxability, two forces opposing each other; one as an invasive force, while other becomes a resistive force immediately following;
- it cannot be accomplished with high-heels, run-over heels; buckling of knees; stiff hip action; bucking outwards of elbows; belly supports on tables which defeat this end; feather bed adjusting tables which make it impossible; belly grabbing immediately upon delivery by Chiropractor — in fact, there is much that defeats its end, including use of any, many, or all "old moves" which have been peddled these many years. No "moving bones" method can accomplish ultimate objective desired. All have been tested, checked thoroly and carefully, and ALL found wanting.

Instead of moving bones, hoping to accidentally get THE one (which occasionally and accidentally DOES happen), SPECIFIC method locates THE ONE (not many) subluxated; realizing

there is a cleavage which must be increased and a resistance to moving bodies of ONE vertebra between ones above and below that must be decreased. To bring this about, SPECIFIC Chiropractor studies mechanical principles of toggle, which make LITTLE MOTION DO MUCH WORK; he steps-up speed of recoiling and energy so that when delivered upon tip of spinous process of one vertebra subluxated, he transfers force INTO that of ONE vertebra subluxated; this causes IT to move BETWEEN other two. In exact ratio as he stepped-up HIS toggle recoil delivery of force, so has he increased INNATE RESPONSIVE toggle recoil of patient, so is there increased cleavage and decreased resistance of moving ONE vertebra between contiguous surfaces of ones above and below.

34. In transferring this energy, upon part of Chiropractor, from waist to shoulders, from shoulders down thru both arms, to focalize his energy thru both arms to hammer head; to nail head of other hand, thru shaft of wrist, both to nail point of hand, thus delivering TO THE ONE VERTEBRA SUBLUXATED in body of patient, so that when BOTH ARMS work jointly, all being in direct contact with tip of spinous proves ONLY of vertebra subluxated, they will FOCALIZE all energy delivery of BOTH arms to ONE point.

To step-up speed, elbows akimbo must be brot INWARD; and as they are, shoulders drop into action in such manner and at such time, being properly timed, as to IMMEDIATELY force elbows outward; this forces arms to flop UP AND OFF of back and away from vertebra to which transferred force has been delivered. This "shoulder drop" is attained by body of Chiropractor from waist up, leaning forward so he is just on and just off balance, so the swing for shoulder drop comes from waist downward, rather than a head drop thru and between shoulders.

When this movement, rapid as it is, is given, blow of transference of speed-force must be short distance, must land, must sock home like a boxer's short-arm in-fighting close-in jab, for actual distance landed by action of elbows and shoulder-drop is limited, but well timed.

Properly timed, well delivered, net effect of this delivery is that INNATE OF THE PATIENT recoils and returns transference by sinking body towards floor and then rebounds back;

AND IT IS IN THIS REBOUND THAT INNATE OF PATIENT TAKES ADVANTAGE OF COMMOTION AND CLEAVAGE INCREASES WITHIN TO CORRECTLY, COMPETENTLY, and ACCURATELY SET SUBLUXATED VERTEBRA INTO NATURAL POSITION, WHICH ONLY INNATE OF PATIENT KNOWS. This is INNATE RECOIL ADJUSTMENT, not given only by Chiropractor, but produced intentionally BY INNATE OF PATIENT, who is only person WHO KNOWS where it actually belongs and can place it exactly there. When INNATE makes adjustment, it will stay longer than when Chiropractor pushes bones to where HE thinks they belong.

ITEMIZED DETAILED ELEMENTS NECESSARY TO PRACTICE SPECIFIC

SELLING CHIROPRACTIC

- (a) Before any analysis is made, patient must be firmly and convincingly SOLD to principles of Chiropractic, so that:
- (b) A complete understanding and cooperation can be had from patient while following thru with SPECIFIC.
- (c) Patient must place his health before any convenience to himself, and
- (d) Chiropractor must NOT WEAKEN as to what he sometimes thinks is minor and unnecessary detail; or let patient influence him to what facts demand otherwise.
- (e) Because Chiropractic is a science of things natural, patient must do everything to help bring it about.

CONCENTRATION

In setting down various factors for successful practice of "SPECIFIC," we start when patient first enters office.

The procedure would be divided into four main divisions, from which numerous subdivisions could be deduced:

- (a) Selling Chiropractic.

- (b) Knowing and staying with your philosophy.
- (c) Correct and scientific analysis.
- (d) Complete case history for permanent record only, not letting it influence you in any other way.
- (e) Careful visual observation of spine for objective defects, such as curvatures, that may enter into analyses or efficiency of adjustments or results.
- (f) Scientific and accurate adjustment of cause.
- (g) Checking, pre-checking, as well as post-checking.

Hovering over and intermingling between all features of SPECIFIC work, one factor predetermines success or failure — CONCENTRATION.

BASIC PRIMARIES

- (a) A patient with a subluxation.
 - (b) An NCM No. 2.
 - (c) A spinographic outfit.
 - (d) A Chiropractor who has brains, can, does, and is not afraid to use them.
 - (e) A Chiropractor who knows how to use NCM and SPGH and be able to interpret both.
 - (f) A Chiropractor who knows how, can, and does have ability to deliver an adjustment.
-

SPINOGRAPH ANALYSIS

To be scientifically accurate, spinograph is necessary — both AP and lateral view, of EACH case. This eliminates guess-work involved in palpation, and also possibility of malformations, curvatures, fractures, exostoses, ankyloses, bent spinous processes, etc.

Determine exact position of most superior vertebra at which most superior reading appears; such reading being a superior atlas or axis cervical vertebra. This is major.

NCM ANALYSIS

A thoro knowledge of working principle of NCM.

Patient should be in a natural, easy-sitting position, with both feet flat on floor, knees not crossed, and spinal column exposed. Avoid distortion of spine.

Conduct your self in a firm but courteous manner.

Have confidence in what you do, remembering if INNATE has control, patient will get well, Innate willing.

Keep fingers as far as possible from end of either detector.

Do not have direct light-heat on patient's back, giving an unequal heat condition.

Do not let others surrounding you detract your attention from concentration.

All radiators and stoves should be at least 8 feet from patient, so as to not throw more heat on one side of body than another.

Never clear NCM glass with silk.

Keep room clear of drafts which fall directly or unequally upon back of case.

Place case with back towards light, either natural or artificial.

Stand directly behind patient while making reading.

Be sure palpation stool is even and steady.

• Use a lot of uncommon common sense.

Keep eyes immediately above and behind dial when making a reading.

Have case come regularly.

Have patient face straight forward to avoid twist in cervical region.

Avoid tight clothing.

See that your sleeves are rolled up above wrists.

Avoid bracelets interfering with free action of adjustment.

Avoid high heels on Chiropractor's shoes.

Do not place hands on patient's back either before or after readings.

Always check yourself to see if you are slipping in any way.

Pay little, if any, attention to symptoms given by patient. Once you have them recorded, forget them.

Try, as much as possible, to keep cases from reporting on symptoms. They will influence you if you let them.

Do not allow symptoms of case to alter NCM technique.

Do not allow circumstances to alter quality of your work.

Spine should not be palpated before reading is made.

Good lighting directly above and over NCM dial is necessary to see clearly and concisely fluctuations of needle.

Chiropractor should develop concentration upon what he is seeing, so he may correctly interpret it.

Unnecessary handling of spine or back should be eliminated. Hyperemia artificially created sometimes complicates a natural heat reading.

It should be understood that patient be properly prepared for an NCM analysis — that is to say, clothing, light, tight bands, unnecessary noises, or anything to divert attention of technician is eliminated before analysis is begun.

HOW TO USE THE NCM

The NCM should be held steady and always perpendicular to spine, following curves as they are approached.

Have an equal, balanced, steady pressure.

Case should be read every day.

NCM technician should use a firm, even pressure to insure proper cupping, but not hard enough to bend in thermo-couple wires.

Be sure detectors are ALWAYS clean. It is best to brush them two or three times during one reading on one back.

Blue pencil mark tips of spinous processes to insure centering or straddling of vertebrae by NCM. If you can straddle vertebrae accurately without doing this, it is better.

Keep detectors astride median line of spine.

Always keep thermo-couples cupped completely on flesh.

Keep detectors straight across on same plane as bodies of vertebrae.

Keep NCM at right angles to surface of plane being read.

Be sure that NCM is same temperature as patient's back when starting a reading — not too hot or cold.

In reading, see that detector cups are held fast against skin to prevent outside air leaking into cups.

When gliding with NCM, keep detectors over intervertebral foramina as nearly as possible by keeping spinous processes under center of bridge between detectors. If bad rotation is encountered, swing NCM to right or left, as case may be, to accommodate rotation.

When starting to read, watch for mechanical break which might fool you, which is sometimes present at start.

Place both detectors on back astride spine and hold a moment before beginning to read. This allows air temperature within cups to become equal to temperature of skin and avoids mechanical break.

Watch for mechanical breaks when gliding over scar tissue.

SLOW careful gliding movement is necessary. Read VERY slowly. Glide as slowly as you are able to make NCM move

and yet keep up a steady continuous gliding contact. SLOW movement is necessary, because reading is actually determined at point of junction of wires of NCM.

It is better to have too much pressure than not enough. Never wash detectors; but if you do, use pure grain alcohol. Better use soft tooth brush, DRY. Brush lengthwise of wires — not crosswise.

Disregard usual hyperemia, except where artificially made.

DIFFERENCE IN READING

It is essential to differentiate break from mean line.

It is essential that technician concentrate to positively ignore mean line readings, so accurate interpretation can be had, of breaks.

Be careful of skin conditions which might cause faulty breaks, such as pimples, boils, etc.

Don't roll skin with detectors, thereby losing correct location of break.

Know that you see what you see.

Watch dial carefully so breaks may be properly interpreted from mean line of heat.

Look for sharp deflection of needle away from mean line of heat and back toward mean line of heat, occurring within an area of one-half inch or less.

Learn to read out of picture mean heat lines.

Remember, median line is not always mean line.

Remember, perpendicular area covered in gliding is a factor in determining a break. To be a break it must occur within width of NCM detectors. In lumbar region, break can occur in slightly more territory than in cervical region; but in no region does it occur in more than one-half inch area.

If patient has abnormal curves in spine, do not attempt to straighten them while giving reading.

BREAK READINGS

Break should be marked on skin as to location, for a matter of record.

Use blue skin pencil and mark patient's back at exact point of peak of break, using Roman numerals to designate number of points of break reading.

First day, entire spine should be read. On subsequent days, only pre and post check where breaks were found formerly.

Mark readings opposite detector, without removing NCM from spine.

Mark on back, with skin pencil, places of interference, with number of points at each place.

WHERE TO READ FIRST

Read UP cervical region and DOWN rest of spinal column.

When reading cervical region, read up to and UNDER occiput, so that NCM will be over first pair of spinal nerves which emit between occiput and atlas.

Reading cervical region, Chiropractor's hand should support patient's head in palm of his or her free hand, thus relaxing neck muscles and steadying head.

Equalize pressure between hand supporting head and hand holding NCM.

Rest patient's forehead in free hand and pull head back against NCM, increasing pull slightly as upper cervicals are reached.

When reaching atlas, get detectors well in *under* occiput to read uppermost pair of nerves. Do not slide up *on* occiput.

KEEPING RECORDS

Accurate records should be kept of readings before adjustment.

Pre-check is made on case each day at as nearly same hour as possible. When 2-point break or more occurs at major, adjustment is given, and post check is made.

Case record should be kept, showing daily readings, adjustment given, post-check, and major picked. This record should be accurate, as it is a means to base conclusions as to progress of case, and of errors detected.

Compare record, from day to day; from one day to past week — that you may watch progress.

Be as careful of post-check as you are with pre-check.

Always read all records of all cases.

Study records from day to day to notice change. If readings are accumulating rather than decreasing, something is wrong.

Check yourself to see if you are slipping in any way.

Do not be satisfied until you have best — which is results.

PICKING THE MAJOR

Adjust only the major.

Do not over-adjust.

Adjust only when two points or more appear at major.

Be sure you have correct major and correct listing of it. Adjust only same major, and then only when it appears as a reading of two points or more.

Bear in mind that NCM shows only difference in heat and that it registers points, not degrees; and that we do not adjust unless it is two *points* or more.

TAKING CONTACT

Visualize line of drive.

Correct standing position.

Contact with nail point of nail hand on vertebra.

Anchor hand firmly, but lightly.

Hammer hand on nail hand with thumb and first finger encircling wrist or lower part of arm.

Perfect relaxation.

Balance on balls of feet with heels just touching floor.

Palpate carefully to help visualize position of vertebra.

Analyze carefully spinograph, visualizing just what vertebra is causing interference and line of drive necessary to correct subluxation.

Be sure that you have proper contact on spinous process and correct line of drive is determined.

Secure that ease of mental feeling of assurance of competency of self.

CONCUSSION OF FORCES

Start elbows in.

Before elbows are completely in, start dropping of shoulders.

Follow thru with elbows until straightened, letting hands flop off.

Adjust major only, when sufficient reading warrants it.

Concentrate upon work in hand.

ADJUSTING THE SUBLUXATION

An adjustment "with that extra something" of major subluxation, is necessary factor for correction of cause of disease, whether chronic or acute, within that body.

Patient must be placed on table in such position as to insure perfect relaxation, on part of adjuster and patient.

Position of patient on table must be correct for adjustment to be given; also standing position of adjuster must be correct.

Enough stress cannot be placed upon accuracy required in following minor important details of adjustment, such as accurate palpation and location of vertebra and placing of nail point.

Speed, with precision so INNATE can use force given, constructively, and thus let Innate place vertebra where it belongs.

Patient is placed with head and chest on head-piece, if kneeling posture is used. If full length side posture table is used, raise or lower head piece to secure maximum relaxation of neck.

Proper standing position is of great importance in delivering outward concussion of forces.

Keep arm muscles relaxed until contracted to give an adjustment in recoil manner when necessary.

Having determined degree and plane of subluxation, take contact accordingly with proper standing position, balancing on balls of both feet.

Having no preference, chest-knee posture is best for greatest relaxation on part of patient.

Deliver an adjustment with "that extra something" — that recoil, that snap, quick-get-there-and-get-away, which gives Innate a force of energy with which to properly correct subluxation.

Incorporate "follow-thru" body drop — an important factor of "that extra something."

AFTER ADJUSTMENT

It is necessary that patient lie down, prone on back. This time, apparently wasted, is essential to keep subluxation seated in new position. This should be insisted upon by Chiropractor.

POST-CHECKING

Following adjustment, a post-check must be made on places where interferences were found before adjustment.

As much accuracy and care must be used as in pre-check.

Post-check will reveal whether or not adjustment has been given. Major reading should check out and other multiple readings should be strongly reduced, if not entirely checked out.

Chiropractor should insist that patient return DAILY, at approximately same time, for post checks.

For sake of scientific work, all symptoms, aches and pains of patient should be ignored, adjustment given only when pressures warrant. Chiropractor should know when NOT to adjust.

Be careful that your desire "to do something" does not overcome good judgment in thinking you should give adjustment when there are no breaks present, in hope of making patient feel better, or satisfy him; especially when patient may not feel as well as day previous and tells you about it to influence what you do. Progress of case should be watched closely by a study of records.

THE AFFIRMATIVE IS ALWAYS STRONG

Laymen's Chiropractic League
Parent Organization
5365 Lawrence Ave. — Chicago, Illinois

April 8, 1932

"Dr. B. J. Palmer, D.C., Ph.C.,
Davenport, Iowa.
"Dear B. J. —

"What questions asked a man, if answered in affirmative, would prove him qualified to practice Chiropractic?

Very sincerely yours,

C. H. GIBBONS, President of L.C.L."

Following questions ANSWERED IN AFFIRMATIVE would prove qualifications of understanding of Chiropractic principle, process, and practice.

We suggest readers see how many THEY could answer "Yes" to:

CHIROPRACTIC PHILOSOPHY

1. Do you believe there is a Universal Intelligence that has created and is maintaining everything in universe?
2. Do you believe in Universal Intelligence?
3. Do you believe in Innate Intelligence?
4. Do you believe there is a direct connection between Universal and Innate Intelligence?
5. Do you believe Innate Intelligence controls body's actions in every way, normally?
6. Do you believe ALL LIVING THINGS have an Innate Intelligence and that purpose of this inborn Intelligence is to maintain material of body in active organization?
7. Does Chiropractor work with Innate?
8. Do you believe Innate Intelligence has at her command forces which we call mental impulses, which operate thru or over nervous system?
9. Are we to suppose an Innate Intelligence is within every living being?
10. Is this Innate Intelligence responsible for creation of mental impulse or life force?
11. Do you believe such control is carried on by mental impulses from this Innate Intelligence?
12. Do you believe such control is carried by mental impulses sent by way of nervous system of body?
13. Do your convictions lead you to believe health comes from within body and not from without?
14. Does this "life force" or mental impulse travel over nervous tissue?
15. Do you believe mental impulses are messages from Innate Intelligence, sent to various cells of body for cooperative action of body?
16. Do you believe such impulses must be received by cells in same quantity and quality as when sent from Innate Brain?
17. Do you believe such mental impulses are sent from an Innate Brain?

18. Do you believe Innate Brain and Innate Intelligence are directly united, as abstract within concrete?

19. Do you believe quality and quantity of mental impulses can be interfered with?

20. If mental impulses are interfered with, will it affect tissue cells which should have received them?

21. If such interference affects tissue cells, will it cause in-coordinative action of those tissue cells?

22. Do you contend control of coordination in body is through Innate Intelligence within body?

23. If such incoordination occurs, will Innate Intelligence know this condition?

24. Do you believe in Chiropractic philosophy?

25. Do you believe Chiropractic philosophy will explain disease and its elimination?

26. Do you consider Chiropractic a separate and distinct science from that of other healing arts and practices?

27. Is Chiropractic a distinct and separate science by itself?

28. Is Chiropractic principle different from all other principles?

29. Is Chiropractic principle different from medicine?

30. Do you know fundamentals of Chiropractic philosophy?

31. Do you agree Chiropractic is philosophy, science, and art of things natural; a system of adjusting segments of spinal column by hand only, for correction of cause of dis-ease?

32. Do you agree Chiropractic is a separate and distinct science unto itself, with a separate and distinct demarcation between principles and practices of Chiropractic and medicine?

33. You admit above definition of Chiropractic? We suppose then, you agree with major premise of Chiropractic and deduced principles from this premise?

34. Is it so that Chiropractors adjust *cause* of disease and medical profession *treat effects*?

35. Isn't it a fact that Chiropractic was based *primarily* upon theories?

36. Have these theories been proven scientifically by advent of Spinograph and NCM?

37. Is it so that you should be on alert philosophically for apparent contradiction presented to you by patient?

38. Is it necessary to confine practice to narrow lines of Chiropractic principles and practice, if for no other reason than legal risk?

39. Do you consider practice of medicine, osteopathy, massage, and schools of drugless healing are not required in addition to Chiropractic for return of health to sick?

40. Do you consider use of radionics, baths, vibrators, lamps, mountain sun, ultra-violet ray, and other such modalities of treatment outside scope or principle of Chiropractic?

42. Do you know theories of retracing?

43. Do you consider diagnosis unnecessary to Chiropractic?

44. Do you believe prescribing of diet is outside realm of Chiropractic?

45. Is spinal cord composed of nervous tissue?

46. Are spinal nerves also nervous tissue?

47. Do spinal nerves emit from cord and go through various holes called foramina?

48. Are these foramina subject to change in size and shape, "squeezing" or impinging a spinal nerve?

49. Is it a fact that all of spinal cord *could be* impinged by lateral walls of a vertebra if it were subluxated?

50. When nervous tissue is impinged, does it change quality or quantity of mental impulses or life force?

51. Do you consider this lack of quantity or quality of life force dis-ease as manifest at periphery?

52. Are we to assume you do not agree with medical principle that dis-ease comes from without body?

53. Do you believe all nerves pass thru and/or have direct connection with spinal column?

54. Do you believe transmission of mental impulses over nerves can be interfered with?

55. If so, will Innate attempt to establish coordination?
56. Will initial interference, if continued, prevent success of such attempt?
57. Do sick people come to you for advice on ailments?
58. Do you administer to sick for relief or cure from illness?
59. Do you consider practice of Chiropractic all-sufficient for correction of cause of dis-ease?
60. Are you a Chiropractor?
61. Do you set yourself forth as a Chiropractor?
62. Have you completed a course in Chiropractic in a school of Chiropractic?
63. Have you graduated from such a school?
64. Do you consider Palmer School of Chiropractic, at Davenport, Iowa, a legitimate school of Chiropractic?
65. Do you hold a license to practice Chiropractic in any state issuing such license?
66. Do you believe in keeping office clean?
67. Do you believe in keeping up personal appearance?
68. Do you possess integrity and principle?
69. Do you place right of sick to get well above everything else?
70. Do you analyze cases?
71. Do you use inductive rather than deductive reasoning?
72. Do you reason from cause to effect?

CAUSE OF DIS-EASE

1. Does pressure upon nerves cause dis-ease?
2. Do Chiropractors adjust cause of dis-ease?
3. Do you adjust cause of dis-ease?
4. Is there a major in each dis-ease?
5. In any case, is major always same vertebra?

6. Are majors found in cervical region?
7. Are majors one of two upper cervicals?
8. Is this only region in which major can be found?
9. Do you use Chiropractic analysis on each patient?
10. Do you agree that cause of dis-eased condition of an organ or any part of anatomy is due to interference to nerve supply between tissue involved and its source, brain; that this interference is created between two aforementioned places, by a pressure on nerves at intervertebral foramen, as result of a vertebra losing its juxtaposition with one above or below, or both, as result of invasive force from within or without body?
11. Do you believe cause of dis-ease is within patient?
12. Is human spine constructed of bony segments?
13. Can such segments, termed vertebrae, become misaligned in relations with those above and below?
14. Do you believe vertebrae of spinal column are movable?
15. Do you believe these vertebrae can become misaligned in relations with those above and below?
16. Are such vertebrae so designed as to form foramina on each side?
17. Do nerves emit thru foramina between vertebrae?
18. Are nerves part of spinal cord?
19. Do you believe misalignment of vertebrae can cause impingement of such nerve or nerves?
20. Do you believe misalignment of vertebrae can cause pressure upon nerves composing spinal cord?
21. Do you believe impingement of nerve or nerves will interfere with transmission of mental impulses over such nerve or nerves?
22. Will invasive forces produce subluxations?
23. Do you believe cause of dis-ease is due to subluxation of a vertebra, which produces pressure upon nerves as they emit thru intervertebral foramina of spinal column, or which has produced pressure upon spinal cord itself, and thus interfered with normal

quantity transmission of mental impulses from brain to various organs, muscles and tissues?

24. Do you contend that dis-ease is effect of a subluxation which is cause?

25. Do you use same principle in caring for *all* cases?

26. Do you use only your hands in adjusting cause of dis-ease?

27. Do Chiropractors adjust cause of dis-ease rather than treat effect of dis-ease?

28. Is vertebral adjustment by hands only all that is needed to correct cause of dis-ease in cases of pressure upon nerves as being causative factor?

29. Will environment, if unsatisfactory, produce dis-ease?

30. Do you believe environment is important factor in causing and eliminating dis-ease?

31. Is there such a thing as infection?

32. Is it true no modalities are necessary in caring for acute or chronic dis-ease?

33. Is it true you do not use modalities in your practice?

34. Do you believe consideration of symptoms of dis-ease is unnecessary in practice of Chiropractic?

35. Are there cases which are outside realm of Chiropractic?

36. Is surgery outside Chiropractic field?

37. Is obstetrics outside Chiropractic field?

38. Are cases of trauma outside Chiropractic field?

39. Are fractures outside Chiropractic field?

40. Do you believe equally good results or even better can be obtained without consideration of symptoms?

41. Are operations sometimes necessary?

42. Is it possible to avoid greatest percentage of operations thru Chiropractic adjustments?

43. Does medical profession treat symptoms of dis-ease?

NCM QUESTIONS

1. Do you believe nerves under pressure radiate heat?

2. Do you believe NCM will detect this difference in heat?

3. Do you believe NCM will register variations in temperature between two detectors?

4. Do you believe NCM will detect such variations far too delicate for human being to detect?

5. Do you believe it is possible for one nerve to be of a higher temperature than another?

6. Do you believe NCM will indicate a peak or peaks of heat between such heat of spinal nerves given off on either side of spinal column when gliding over skin over such nerves?

7. Do you believe such variation may be indicative of faulty condition of such nerve?

8. Do you believe such heat peak may be caused by impinging a nerve?

9. Do you believe pressure upon a nerve or nerves composing spinal cord does interfere with transmission of mental impulses over such nerve or nerves?

10. Do you believe interference so caused will affect tissue cells to which mental impulse was directed?

11. Do you believe such interference will reduce quantity of energy or quality of such mental impulses?

12. Do you believe energy so lost is burned at point of impingement?

13. Will such burning of energy cause heat at point of interference?

14. Is such impingement Chiropractically called a subluxation?

15. Is heat so generated too slight to be felt by human sense of touch?

16. If such slight heat is generated at point of subluxation, is it then necessary to employ an instrument to locate such point of interference if corrective measures are to be taken?

17. If such heat, which would indicate THE point of interference, cannot be detected by human sense of touch, is it impossible to practice and deliver best Chiropractic without a NCM?

18. Can such heat be registered by mechanical instruments?

19. Is NCM manufactured to detect such nerve heat?

20. Will interference to transmission of mental impulses cause so-called dis-ease?

21. Can dis-ease exist within a body in various degrees or locations, so long as interference continues?
22. Has NCM proven a subluxation does exist?
23. Will this interference continue as long as subluxation is present?
24. Would you refrain from "adjusting" vertebra until heat was again registered by NCM?
25. Can you establish a major by use of NCM?
26. Is registering of such a heat peak termed Chiropractically a "reading" or a "break"?
27. Can you distinguish between mean line heat readings and break readings?
28. Is it necessary to have daily NCM readings of patient to determine whether subluxation has returned?
29. When you use NCM is it necessary to concentrate on reading?
30. Is it necessary to read slowly with NCM technique?
31. Do you try to improve upon your NCM technique?
32. Do you believe NCM is a scientific instrument?
33. Do you believe NCM as a scientific instrument will register comparative heat given off from spinal nerves?
34. Do you understand principle of NCM?
35. Do you know working principle of NCM?
36. Do you understand use of NCM?
37. Do you know how to properly apply NCM to spine?
38. Do you use it to locate nerve pressure?
39. Do you believe NCM is only instrument that locates nerve pressure and without its use it is impossible to determine nerve pressure with any degree of accuracy, if at all?
40. Do you believe use of NCM in hands of a competent Chiropractor enables him to render greater service to sick?
41. Do you, as a Chiropractor, agree to follow through according to preceding principles, adjusting ONLY WHEN READING JUSTIFIES SAME?
42. Do we believe that upon NCM findings rests future success of Chiropractic?

43. Is it so that what NCM finds takes inadequate Chiropractic methods from judgment of men?

44. Does NCM prove that sometimes we do not give an adjustment?

45. Isn't this one reason why so many field men have refused to accept it?

46. Isn't it a BASIC fact that NCM proves pressures are released and transmission restored when adjustment is given?

47. Do NCM and Spinograph aid in ultimate objective of getting sick people well?

48. Do you believe scientific instruments can be and are made which will register impression far too delicate for human being to detect with his senses?

49. Do you pre-check?

50. Do you post-check?

51. Can NCM be dangerous if not used correctly?

52. Is it possible to make a mistake with NCM?

53. Could a mistake with NCM hinder progress of patient?

54. Is NCM a Chiropractic instrument?

55. Understanding and answering all preceding questions in affirmative, you agree if mental impulses are interfered with, and sometimes actually blocked as a result of partial or complete occlusion of a foramen, it follows that mental impulses, also commonly known as nerve force, must be and are dissipated at that point in form of heat. Do you agree that an instrument known as a NCM, simple in construction, positive in action, capable of reading minute degrees of heat with two detectors, each passing over nerve emitting thru foramen on either side of vertebra, is indispensable to a Chiropractor, whose main objective is to locate and know where such condition exists?

SPINOGRAPH

1. Do you use Spinograph?

2. Do you use it for Spinographic work?

3. Can you read Spinographs?

4. Are you well versed in plate reading?

5. Can you list Spinographs?
6. Do you use Spinographs in your practice?
7. Do you believe Spinographs necessary in practice?
8. Are you a capable Spinograph technician?
9. Do you read and interpret Spinographs?
10. Do you adjust according to such interpretation?
11. Is it best procedure to use NCM in connection with Spinographs?
12. Do you believe patient receives best service thru such combined use?
13. Is it possible to obtain good results on cases without Spinograph?
14. Is great care necessary in taking Spinographs?
15. Do you know precautions necessary to protect patient from X-rays?
16. Do you use palpation if you have no Spinograph?
17. Are you versed in general anatomy of body and detailed anatomy of spine?
18. Do you know value of Spinographs of spinal column, and that both A.P. and Lateral views would show deviation of a vertebra from normal juxtaposition with one above and below?
19. Do you Spinograph patients to determine position of subluxated vertebra?
20. Is it best to have both anterior and posterior and lateral views?
21. Is it most important to have such views of cervical region?
22. In all cases, would Spinographs be of extreme value?
23. Will Spinograph show misalignment?
24. Does this prove vertebrae can be misaligned to varying degrees?
25. Can you pick a major subluxation with Spinograph in conjunction with NCM readings?
26. Is it possible to have interference with no apparent misalignment shown on Spinograph?
27. Would you base such conclusions on NCM?
28. Can you operate a Spinograph?

29. Are Spinograph and NCM vital to efficiently practice Chiropractic?

THE SPECIFIC

1. Do you believe in "SPECIFIC" technique?
2. Do you understand "SPECIFIC"?
3. Do you use "SPECIFIC"?
4. For cases of emergency in field, should you understand meric system?
5. Is meric system a product of Palmer Chiropractic?
6. Do you believe meric system, hot and cold boxes, majors and minors, etc., were all good Chiropractic practice in their time of development?
7. Do you believe "SPECIFIC" technique is a further development?
8. Is meric system becoming obsolete to modern Chiropractic?
9. Does use of NCM and "SPECIFIC" work dispense with necessity of symptomatology and pathology?
10. Do you believe principle of "SPECIFIC" technique as set forth by B. J. Palmer is Chiropractic?
11. Do you believe such is best advanced scientific Chiropractic?
12. Do you believe sick are entitled to receive such perfected scientific Chiropractic?
13. Do you practice "SPECIFIC" on your patients?
14. Do you believe Chiropractic development will go beyond "SPECIFIC" technique?
15. Do you find subluxations only in upper cervical region?
16. Is it possible for misalignments of vertebrae to exist in spinal column without causing subluxation?
17. Are you having success with this system on your patients?
18. Do you administer to your patients latest and best Chiropractic at all times, to best of your ability and knowledge?
19. Do you believe in advancement of Science of Chiropractic?
20. Would you be willing to assist in improving Chiropractic by constructive suggestions?

21. Do you believe sick have a right to get well?
22. Would you frown upon practice of destructive criticism engaged in by some members of Chiropractic profession?

ADJUSTING

1. Do you believe an adjustment, given in as nearly correct angle of drive as possible, with necessary speed, and administered in such a way as to give Innate Intelligence control of external force, will enable Innate Intelligence to restore subluxated vertebra to normal position, will release pressure upon nerves of spinal cord and will permit unhampered flow of mental impulses from brain to periphery and, given time, will correct diseased condition?

2. The Chiropractic premise maintains a vertebra can lose its juxtaposition in three different degrees—misalignments, subluxation, and luxation. Do we contend that invasive forces produce misalignments, and also subluxation superior to misalignments? This, we call major. By adjusting this one vertebra, misalignments are adjusted by Innate.

3. Do you understand art of Chiropractic?

4. Can you, from knowledge of human anatomy, visualize all organs in healthy condition; also in an abnormal or diseased condition?

5. Is it possible for symptoms of disease to continue within body for some time after proper adjustment is given and subluxation corrected?

6. Is this due to "momentum" of disease?

7. If adjustment is properly given and impingement is permanently corrected, will disease disappear?

8. Is correcting of subluxated vertebra Chiropractically termed an adjustment?

9. Can a subluxation be corrected?

10. Is such correction principle and practice of Chiropractic?

11. Do Chiropractors make such corrections with hands only?

12. When such correction is made, will normal transmission occur?

13. Will mental impulses be then transmitted in full quality and quantity?

14. Will heat generated during impingement then disappear?

15. Will NCM indicate such disappearance?

16. Do you practice straight Chiropractic?

17. Can you give Chiropractic adjustment?

18. Do you adjust ONE PLACE only; and only when NCM indicates pressure of sufficient quantity; and then do you FOLLOW THRU on major?

19. Do you possess comprehensive knowledge of neuro-skeleton and can you deliver concussion of force in form of an adjustment that will give Innate opportunity to seat a vertebra?

20. Are we to understand Innate Intelligence moves vertebra, when adjustment is given?

21. Does Innate use concussion of force to correct subluxation?

22. Will this Innate Intelligence get every sick person well, provided right thing is done at right time in right way?

23. Can subluxation return to cause dis-ease or rather inco-ordination in future?

24. Can you give an adjustment?

25. Do you use Palmer Toggle Recoil in giving adjustment?

26. Do you use recoil adjustment?

27. Do you use side posture table when adjusting patient?

28. Do you have patient lying on side on table when adjusting?

29. Is adjustment on major all necessary to correct cause of dis-ease?

30. In an acute case, would you adjust only one vertebra?

31. Would you adjust major in acute case?

32. Is adjusting all you WOULD DO to help patient?

33. Is adjusting all necessary to do?

34. Is it best to adjust as seldom as possible?

35. Do some cases respond to adjustments quicker than others?

36. Are you particular about fine detail connected to assuming of position, position of patient, and giving of adjustment?

37. Is it necessary for patient to relax as nearly complete as possible?

38. Have you felt that rotary, T.M., and other such moves should be discarded?

39. Do you believe various dis-eases or incoordinations will respond to adjustment of this major?

40. Do you believe a major subluxation can exist in a spinal column?

41. Will adjustment of a subluxation in upper cervical correct misalignments at lower points in spinal column?

42. Do you find subluxations are found at atlas and axis?

43. Do you believe patient should rest after adjustment?

44. Do you check your methods and actions regularly?

45. Do you believe palpation is necessary?

46. Is this according to Chiropractic principle and philosophy?

47. Do you have for your objective rendering of a more efficient health service to sick?

48. Are you particular about appearance in office and sales talks to patient?

49. Do you insist upon cooperation of patient?

50. Do you insist upon being boss as it relates to office procedure?

51. Is it so that if patients fail to get well fault is not Chiropractic, but Chiropractor's?

52. Would you assume responsibility of keeping your practice as modern as advance of science permits?

53. Do you refuse to use modalities of any kind or description?

KEEPING RECORDS

1. Do you keep daily records of cases?
2. Do you pre and post-check all cases?
3. Do you post-check patients carefully?
4. Do you keep records of patients and adjustments?
5. Do you keep records of all cases?
6. Are such records necessary?
7. Do you study these records for improvement of your practice?
8. Do you frequently check yourself in your work?

CHIROPRACTIC ORGANIZATIONS

Do you lend support to organizations that have for their purpose:

- (a) education of people to Chiropractic;
- (b) fighting for legal recognition of principles and practices of Chiropractic;
- (c) protecting of Chiropractic in its purity for posterity?

CHAPTER 3

The Story Of ELECTROENCEPHALONEURO- TIMPOGRAPH

Electro-
encephalo-
neuro-
ment-
imp-
o-

graph — what it does and how.

Graph made upon entrance of case; check each two weeks thereafter; thus proving our work.

Chiropractic principle and practice entirely, inclusively, and exclusively revolves around following:

1st. Forces are divided into two groups: invasionary and resistive; where one is accepted by other and adapted to its good, or one is rejected by other because it is destructive to its better interests.

2nd. Chiropractic is concerned with both sides of this study of forces — invasionary being greater than resistive PROducing a vertebral subluxation; invasionary being greater than resistive REDucing a vertebral subluxation.

3rd. Which is greater than other depends upon which is weaker, both being comparative to each other. If resistive is normal, par, 100 per cent, it takes more than that quantity of invasionary force to overcome resistive and PROduce subluxation. If resistive is below normal, below par, say 50 per cent, then any quantity above that resistive force could PROduce a vertebral subluxation. Same hypothesis would apply in reversing order in REDucing vertebral subluxation. In sleep, where resistive forces are at low ebb, it would take less invasionary force to PROduce. Same would be true in REDucing same. This accounts for how and why some people go to bed feeling normal and get up sick; or go to bed sick and get up normal.

4th. Vertebral subluxation diminishes, occludes, reduces size of lumen or foramen thru which spinal cord or spinal nerves pass.

5th. This reduced size of passageway produces pressure or constriction upon or around spinal cord or spinal nerves.

6th. This pressure offers resistance or interference to normal carrying capacity of spinal cord or spinal nerve.

7th. This resistance or interference reduces normal quantity flow of mental impulse or nerve force flow between brain and body.

8th. This reduced quantity flow delivers less than necessary at periphery of nerves in tissue cell structures.

9th. This reduced delivery reduces speed of action per unit of time of tissue cells, organs, or viscera of body.

10th. This slowed-up speed of action lowers normal function of that or those structures thereby delivering less product or by-product.

11th. This diminished product or by-product is dis-ease.

12th. Regardless of structure, location, quantity, degree, or time, fundamental of underlying CONDITION of any, many, or all disease is same — it is dis-ease in function in body as compared to ease of Innate in brain which generates normal quantity of mental impulse or nerve force supply for same unit of time.

13th. Compare unit of time of brain in generation, unit of time in transmission from brain to body, unit of time in expression in body, and they do not agree, establishing an unbalance between them — dis-ease.

14th. Chiropractic adjustment reverses issue and permits Innate brain ease to flow to functional body dis-ease — health, life.

15th. Chiropractic vertebral adjustment increases, opens, size of lumen or foramen thru which spinal cord or spinal nerves pass.

16th. This increased size of passageway reduces pressure and enlarges diameter and/or circumference upon or around spinal cord or spinal nerve.

17th. This releasure of pressure permits a normal restoration of mental impulse nerve force flow to normal capacity, thru spinal cord or spinal nerves.

18th. This increased quantity flow delivers par quantity energy of mental impulse supply between brain and body.

19th. This normal quantity flow delivers necessary quantity at periphery of nerves in tissue cell structures.

20th. This normal supply of force or energy produces normal speed of action per unit of time in tissue cells, organs, or viscera of body.

21st. This normal speed of action produces normal function of that or those structures thereby delivering normal products or by-products.

22nd. This normal product or by-product is life — health.

23rd. Compare unit of time of brain in generation, unit of time in transmission from brain to body, unit of time in expression in body, and if equal to each other it establishes a balance between them — ease.

(We believe this to be the clearest, most concise explanation we have issued. It could be used as a definition. B.J. 12/6/50.)

Electric fan — breeze

revolving blades

revolving motor

flowing electricity.

Pre-determining factor is quantity of energy

which revolves motor

which revolves blades

which produces breeze.

Reduced energy flow

reduces motor revolutions per minute

reduces blade revolutions per minute

reduces breeze.

Electric globe — light — same principle;

reduce input and you correspondingly

reduce output.

Electricity is nearest comparative study we have to illustrate our Chiropractic principle and practice.

In one respect it is NOT comparable — lack of intelligence, judgment, discrimination, memory of past experiences; experiences of eons of time; absence of Innate Intelligence.

Electricity would as soon kill as give heat, light, motion.

Innate Intelligence is constructive, helping, healing, curing, saving life.

Electrical meters predetermine all effects at peripheries of those wires. Meters are all important, whether at generating plant or in home, large or small.

Whether or not mental impulses are energy, power, direct or alternating current, has not been proven. Our timpograph work indicates it is both.

Superimposed onto, into, or thru our human energy impulse nerve force flow is intelligence, judgment, discrimination, adaptation, memory that works to produce construction, building, help, healing, curing, saving and prolonging lives.

Concussion of forces — invasionary trying to get in
resistive trying to keep it out.

— Innate permits it to come in IF helpful, constructive, saves life; if it is of quantity Innate can adapt to.

— Innate resists its coming in if harmful, destructive, destroys life.

—Examples: food, water
gases, liquors.

What is meant by invasionary forces?

— water is an energy potential

— too much will drown

— oxygen is an energy potential

— too much will asphixiate

— one ounce of carbolic acid diluted in a barrel of water will do little harm

— one ounce of carbolic swallowed in essence will kill

- Innate is unable to adapt its resistive forces to combat its potentials
- Innate then vacates the house and puts a "For Rent" sign out on that body.

Invasionary forces we consider and study most are traumatic or accidental energy invasions.

Vertebral subluxation occludes

- produces pressure
- introduces resistance or interference to normal quantity flow
- reduces normal quantity flow between brain and body
- delivers less at tissue cell
- produces less work per minute of time
- delivers less product or by-product of that tissue structure
- slows down its speed of action.

Multiply time and you have a growing dis-ease, regardless of location, degree, combination of symptoms or pathology, or diagnosis given to what exists.

Story of Mike and Kitty Scallon, years ago:

- if there were some way we could measure quantity of intelligence existing in brain, we could measure quantity generated, condensed, concentrated in brain;
- if we could know which lobe of brain manufactured nerve force for which part of body;
- if we could measure quantity flow sent out from brain into nerves;
- if we could measure quantity flow flowing thru nerves going to some part of body;
- if we could measure quantity received or not received in some part of body;

— if we could prove all this — we could prove Chiropractic principle correct.

— If we could measure all this before and after adjustment, we would know whether what we have done, where we did it, how we did it, when we did it, was right or wrong;

— if we could do this, we could prove where our practice was right or wrong in getting sick people worse or better; getting them well or making them more sick.

Mike knew some person connected with General Electric who could manufacture such an instrument. We gave him carte blanche.

He took one year; said it couldn't be done

— it was one of the imponderables

— he couldn't convert an abstract to a concrete

— he couldn't convert that to energy and measure it

— he couldn't convert intelligence to energy and evaluate it

— he couldn't convert memory to mental impulse and measure it.

We came home determined to work it out ourselves;

— we had the idea; Otto Schiernbeck had electrical knowledge and ability.

Meanwhile, we learned medical men had been playing with an encephalograph;

— they were concerned ONLY with a single brain graph wave pattern in epilepsy only;

— we wanted more than that, for Chiropractic principle and practice *was* more than that;

— we wanted to prove generation in brain, normal and abnormal flows thru nerves;

— we wanted to prove dis-ease was a reduction in that flow in body.

Medical men study brain symptoms only.

We wanted to prove normal brain quantity;

- abnormal nerve force flows;
- dis-eased quantities of action in body;
- cause and its correction betwixt and between the two;
- restoration of flow and cure of dis-ease.

This demanded more than a one-channel instrument.

Finally we developed a nine-channel instrument;

- this gave us eight channels for pick-ups and one channel for timing, every second, measurement of time element.

Fundamental intent was to measure QUANTITY in brain, nervous system, and body.

We now fell back on our SUPERIOR AND INFERIOR MERIC brain divisions, nervous distribution, and body peripheral distribution of those nerves in organic structures.

Originally we had only INFERIOR meric system;

- this was researched to locate paths of nerves under pressure, between organ involved and exit of those nerves from spinal column by digital palpation on sick people who helped us with information as to tender nerves on their pathways.

- This was done at that time to try to locate vertebral subluxation producing interference.

- Because it entered, or exited, at a certain place, between any two of twenty-four vertebrae, we thot this WAS the vertebral subluxation.

Later we discarded this opinion because we proved that was not sound or true.

At a later period, we researched SUPERIOR meric system.

- This linked certain areas of brain with certain areas of body;
- with certain direct nerve fibre continuity one with other.

In seeking information WHERE to locate our electrode pick-ups, we now fell back on SUPERIOR AND INFERIOR meric systems.

— Having NINE electrode pick-ups, we were able to trail out locations of connections of one with other.

— This eventually proved that ONLY place where there WAS a subluxation with its four elements:

— misalignment

— occlusion

— pressure

— interference and resistance to flow —
was at occipito-atlantal-axial area.

Having PROVED THIS, we now confined research to proving that adjustment given there ONLY would and did restore normal quantity flow between brain where it was, and body where it wasn't — providing what we did

— where we did it

— when we did it

— how we did it — was done correctly and efficiently.

Having ascertained this, our next step was to prove it alone worked on actual cases, in application.

For fifteen years, on thousands of cases, no other place than atlas or axis has been adjusted, except in one instance where a third cervical DISlocation was adjusted.

Type of cases we get here are worst of worst. Approximately 40 per cent of our cases are Chiropractors or direct members of their families; or patients they refer as problem cases on which they have failed but want to get well.

Our profession, however, did not follow us in this research.

— It was beyond their understanding;

— all we could do was to give them our conclusions,

— explain it as best we could;

— give our reasons why we did what we did, where we did.

— Some cases needed adjustment, others needed treatment.

— Cases on which they succeeded, they gave adjustments — perhaps too many, at wrong places.

— Cases on which they failed, they gave treatments, temporary relief, and continued following that program.

Today our profession, in many of their offices, follow a cross-breed of Chiropractic and medicine; Chiropractic principle and practice plus medical principles and practices, adjusting cause and treating effects;

— with result that getting sick people well is empiric, arbitrary, accidental

— rather than getting sick people well by intention, direct and not remote.

Our profession, however, could not or would not follow our lead.

— They followed, more or less, our older INFERIOR meric system idea.

— They succeeded in some cases, failed in majority.

— They believed Chiropractic was of split value.

In what way did we use 'timograph to prove the all-inclusive and all-exclusive atlas or axis specific major as cause or correction?

If you have followed our reasoning in these statements, you know there are brain lobe and organic structures united by a continuity of nerve fibre conveying a continuity of mental impulse or nerve force supply; a brain-cell-to-tissue-cell nerve fibre continuity flow, efferent and afferent, completing a cyclic circuit, conveying function down and sense impressions up.

If you have further followed our Chiropractic reasoning in these statements, you know that somewhere between brain and body, brain lobe and organic connection, there is an interference to normal quantity of mental impulse or nerve force flow, reducing its quantity. Vital question for which we sought answer was: WHERE WAS THIS VERTEBRAL SUBLUXATION LOCATED? Was it many places or one place?

We placed electrodes on brain lobe (#1), above atlas (#2), below atlas (#3), above 6th dorsal (#4), assuming it was a case of "stomach trouble," below "S.P." (#5) — latter two being

placed at inferior meric system place of exit of nerve fibres from spinal column to stomach — over stomach (#6), then on afferent fibres leading FROM stomach BACK TO brain (# 7 and 8), etc. By measuring flow of these places, which was specific, we could locate where drop in quantity flow took place, where "leak" was, where interference and resistance were taking place. Comparatively, we were placing meters at various places where we thot leak MIGHT be. Obviously, one of them was sure to prove.

Proving this out on thousands of cases proved our hypothesis was scientifically sound. We also found when case was adjusted at place where pressure WAS, where leak existed, where interference was reducing flow, all other meter measurements at all other places below showed increased flow in exact ratio as pressure was released. We have been proving this practice sound fifteen years.

That Chiropractic principle and practice was sane, sensible, scientific, was now proven to OUR satisfaction.

That medical principle and practice was not sane, sensible, or, scientific, was still to be proven.

How did we prove this?

We made thousands of tests of effect of water, milk, tea, coffee, gin, rye, whiskey, etc.;

— of effect of infra-red rays, violet rays, massage, Turkish baths, anacin, aspirin, histomines, miracle drugs, injections, colonic irrigation, hypodermic injections, etc., galore,

— to see WHAT EFFECT ANY OR ALL OF THESE HAD ON INCREASING OR DECREASING QUANTITY FLOW OF MENTAL IMPULSE NERVE FORCE FLOW;

— whether it temporarily or permanently increased or decreased that flow;

— for, after all, that IS the Chiropractic principle and practice of sickness and getting sick well.

Where did we come out, with all these many months of research?

When STIMULANT was given, regardless of character, loca-

tion, or quantity potential, it always stimulated first, and finally went into a relapse of a block on quantity flow.

When INHIBITANT was given, regardless of character, location, or quantity potential, it always inhibited first and continued its relapse of a block on quantity flow.

With our endless length of roll of paper, we could run our test for hours.

Example: If, at 6:00 a.m., we gave three shots of whiskey

- at 5:00 a.m. we would run a norm graph wave pattern BEFORE giving whiskey;
- at 6:00 we continued test, giving whiskey;
- our graph wave pattern would now show a decidedly increased flow;
- sooner or later, depending upon what stimulant was given, graph wave pattern would begin to drop in quantity flow;
- it would now go way below par quantity flow and tonicity for hours;
- depending upon what was given, it would take from eighteen to forty-eight hours to wear off and get back to normal flow of 5:00 a.m. when we started.

Same was true of depressants.

Our graph wave pattern would start with a reduced quantity flow;

- length of time this would continue would depend upon what was given and quantity thereof.

It takes approximately twenty-four hours to wear off lowering quantity flow of anacin or aspirin, gradually getting longer as continued.

It takes approximately forty-eight hours to get over a whiskey jag or spree, gradually getting longer as continued.

What we proved was that stimulating or inhibiting flow of mental impulse or nerve force had a reasonably short period of inflation and a much longer period of deflation of that flow. Gradually as time wore out any stimulation or inhibition of presently used drugs, stronger ones became necessary. Eventually, these wore down their value. Time of blocking became

longer, week after week, month after month, hence case became addicted to drugs to try to stem tide of decreased value and prolonged blocks. Today, we find Coca Cola fiends, morphine fiends, as a direct result of this prolonged chemical drug-blocking process.

Ultimate value of this research was:

Vertebral subluxation is a MECHANICAL block to normal quantity flow.

Treatment, regardless of what is given, regardless of whether stimulant or inhibitant, regardless of quantity given, is A THERMAL, MANIPULATIVE, ELECTRICAL, CHEMICAL BLOCK to normal quantity flow; and, if continued, blocking increases in length of duration.

Where treatment method is given, it ADDS A SECONDARY BLOCK TO PRIMARY BLOCK.

Where adjustment method is given, purpose is TO RESTORE below par quantity up to a NORMAL PAR quantity.

Where treatment method, regardless, is given, it STYMIES by reducing that which has just been restored; so instead of HELPING case, you have actually destroyed case's chance of getting well.

Suppose you RESTORE an absent 50 per cent by adjustment, and give treatment which blocks off 50 per cent. You do not help your case but hold him at status quo. No matter how long you continue this process, case can never get well.

If there were PERMANENT value in stimulating inhibition, or inhibiting stimulation, you could give one treatment, one dose or drug, and person would get well, given time.

In constipation (as an example) it is necessary to take something today, repeat it tomorrow, and keep on repeating, gradually finding it necessary to increase dose until that form of drug no longer is efficacious. Next, you step up potential to some stronger drug, starting with its lowest potential, gradually stepping that up until it no longer delivers. That's what makes drug addicts — they can't live without it.

If one were interested only in relieving, alleviating, ameliorat-

ing, to bring about temporary condition, there are multitudes of things which will do so quicker than adjustment. If you are interested in getting a case PERMANENTLY WELL, adjustment will bring that about.

In our private research clinic we are not interested in doing anything temporary. We are interested in GETTING SICK PEOPLE WELL.

If I were a Chiropractor and wanted to give adjustment AND treatments, I would want TO KNOW whether what I was doing was RESTORING OR DESTROYING normal quantity flow of mental impulse nerve force.

Electroencephaloneuromentimpograph PROVED THIS TO OUR SATISFACTION.

Today we receive worse cases in our private research clinic, get them well quicker, because WE DO NOT PERMIT OUR CASES TO DO ANYTHING WHICH BLOCKS OFF WHAT WE RESTORE.

You can do this, too, in same way, if you have courage of convictions we have.

That our private research clinic proves application of what we have researched is obvious. One reason WHY we succeed where others fail is because we do not permit cases to take drugs of any kind. By keeping them off drugs we permit Innate full sway in rebuilding what would otherwise be blocked by treatment or drug.

Another reason is that our adjustment is given at right place, right time, in right manner; not over-adjusting; adjusting only when interference is present, being careful thereby to avoid reproducing vertebral subluxation mechanical block. One of worst violations we have to our principle and practice is thinking if we do no harm punching backbones, we must be doing good. It is provable today that over-adjusting is frequent, creating block to flows, prolonging possible improvement of case. Even tho innocently done, it is as bad in production as tho done by trauma.

Another reason is that we "set" vertebra then require case to rest for a period of at least three hours to permit vertebra to "seat" itself, thus helping it to stay fixed.

Many Chiropractors spend years studying HOW to adjust a vertebral subluxation and won't spend one minute, one dollar, or use any method of helping it to stay fixed after once set.

Another reason is that we KNOW what to do, when to do it, how to do it, why; and KNOW when to stop—then do it according to our researched conclusions, staying by them, not deviating from them.

Electroencephaloneuromentimpograph has never measured more than five-millionths of a volt;

— we must amplify this 400 trillion times before we can graph-wave-pattern it;

— in sick people it is less than that depending upon degree of sickness present.

In beginning, problem confronting us was how to amplify without distortion of graph wave pattern.

We finally licked this, after six months, day and night, driving us crazy.

Reading graph wave patterns is a complicated job;

— there are many superimpositions on carrier wave pattern;

— telephone, singing noise is carrier wave;

— voice is superimposed into, onto, or thru carrier wave pattern;

— same is true with our graph wave patterns.

— Certain superimpositions must be read in, others read out, depending upon what information we seek.

It has taken us years to research this work, and few know it.

In general, however, a revolving registering thermometer, if temperature is consistent, will deliver a constant pattern.

Same is true with Innate intellectual mental impulse nerve force graph wave patterns;

— if there is NO subluxation, pattern will be a straight line, with few superimpositions of sick pattern;

— if there IS a vertebral subluxation, pattern will vary from above and below carrier wave pattern to extent of dis-ease as of places measurements are being made.

We have isolated some fifteen distinctive types of superimpositions.

We have isolated thot-flash wave pattern of brain, etc.

(For elaboration of this subject, see *The Story of Researching the Unknown Man*, in this book.)

Insanity is comparative to sanity. Sanity and intelligence are comparative to each other. Any insane person is not intelligent.

Sanity and insanity, intelligence and ignorance are measurable in frequency, duration, and completion of thot flashes — which is one isolated graph wave pattern we deciphered in our timpograph research work.

Every time individual thinks there is a mental-brain thot-flash which shows up as a superimposition in, on, or thru carrier wave.

If individual thinks a thot-flash with frequency of one every second of time, is able to hold that thot-flash for a full second, and is able to complete that thot-flash in that second of time, he has a high IQ of sanity and intelligence, possibly 200.

If individual thinks one thot-flash with frequency of one every five seconds, is able to hold it only one-fifth of a second of time, and is able to only one-fifth complete that thot in that second of time, his IQ of sanity and intelligence has dropped to possibly 40.

In exact proportion as spread occurs in frequency of thot-flashes, inability to hold it for any length of time, and inability to complete that thot in that element of time, to that extent he is insane and not intelligent.

In past, if a person was believed insane he was brought before court who issued an order to have three INSANITY specialists examine and pass judgment upon his sanity or insanity. If the three disagree with the one, he is insane. It is possible that THE ONE might be sane, other three being insane. Disagreement in views is no criterion of sanity or insanity. In any event, whether or not the three disagree is a matter of opinion and judgment. It is possible today to mathematically measure sanity and insanity by above method. It is no longer necessary to leave question unanswered, by opinion, theory, psychiatry, psychology, or judgment.

In past, a person was presumed to be educated according to how many schools, colleges, universities, courses, studies, semes-

ters he attended. True value of how much or how little education one may possess depends upon thinking values. Some of greatest thinkers world has produced have been people who never attended ANY school; but they could think in frequency, duration of holding thot, and in completion of thots. Today, we measure intelligence with timpograph tests.

Sanity and intelligence, insanity and ignorance are comparative terms and are subject to measurement with graph wave patterns.

"Educated" man usually is a *blank repeater*, parrot-like, out of books. He *absorbs* like a sponge from limited supply from *external environment*, from small *artificial* supply of other "educated" people. He would be *limited* in thot-flash frequency, *shorter* duration and *less* complete ideas. He is *inhibited* by "educated" memory of what he reads, others tell him, or he believes environment justifies.

"Intelligent" man thinks thot-flashes of *original*, *practical*, and *workable* value. *Unlimited Innate* source flows to his "educated," *instructing him what* to think, *when* to think, *how* to think, *how and when* to apply it. He draws from an *exhaustless* internal source that has *no inhibitions*, therefore would have *greater* frequency, *longer* duration, and *more complete* thot-flashes.

CHAPTER 4

The Story Of DISCIPLINING THE HOUR

OPIATES, NARCOTICS, AND HYPNOTICS ARE JUST THAT

Definition — “pain.” Bipeds and quadrupeds have a continuity of matter from brain cell to tissue cell, tissue cell back to brain cell, thru which flows a continuity of mental impulse nerve force. Act of flowing is proof of its living. This current should never be static. If it becomes so, death ensues.

In exact ratio as current flow dwindles from normal quantity between brain cell and tissue cell, act of flowing ceases to that extent, a static condition begins to accumulate, function slows down at periphery of efferent nerves which convey them.

In exact ratio as efferent current slows functional activity in tissue cell, do we decrease afferent impressions which should flow afferently to brain. Difference between what does reach brain and what does not, afferently, is, when interpreted by mind in that brain, discomfort, muddled feeling, aches, or pains. Pain is internal mental interpretation of external abnormal physical conditions.

Definition — “sleep.” Sleep is at all times, under all conditions, a natural action upon part of Innate Intelligence. It can be brot about because of natural and normal wear and tear demanding time for recuperation; or it can be a forced condition as a necessity in situations where Innate deems it necessary, such as traumas, operations, great suffering, shocks, etc.

Human minds — Innate and Educated — are two distinctly different personalities. They live in two distinctly different brains. Innate is on job twenty-four hours a day, every second, from birth to death. During “waking hours” it permits a certain portion of external body to be under direction of Education SO LONG AS WHAT THAT EDUCATED PERSONALITY DOES IS NOT TOO DESTRUCTIVE IN SHORTENING HUMAN LIFE. During “sleeping hours” educated personality is dormant, not present, and Innate is in FULL control of all parts. “Sleep” is

voluntary withdrawal of Innate from superficial portion of educated body, thus forcing it into a non-conscious state for time being. "Fainting" is voluntary withdrawal of Innate from superficial of educated body, thus quickly forcing it into a non-conscious state for time being. At all times, under all circumstances, Innate is in full and complete control of whether or not to induce "sleep" depending upon necessities of that body for rest and recuperation. In case of opiates, narcotics, and hypnotics, it is not drugs which "produce sleep" but where, in opinion of Innate, it is better to withdraw her flowing currents from Innate to Educated brain; thus INNATE, not the drug, "produces sleep".

Cases suffering from pain, who can't sleep, etc., take drugs to "kill pain" or "produce sleep." In doing this, they little realize they do very thing which eventually defeats ultimate objective they seek — health. Opiates, narcotics, and hypnotics DO bring about IMMEDIATE even tho TEMPORARY cessation of pain and production of sleep. In taking drugs to create a TEMPORARY relief, they deaden efferent flow of mental impulses, thereby deadening function; they so deaden afferent flow of impressions that they deaden feeling; consequently they make impossible any NCM reading of interference. Case goes to Chiropractor to be read, to locate interference, to get adjustment, to get well. Chiropractor FINDS NO READING, and nothing follows.

Subluxation CAN exist, occlusion CAN be present; pressure upon nerves CAN be present; there CAN be interference with transmission — BUT if case takes opiates, narcotics, or hypnotics, NCM reading MAY NOT BE PRESENT. Any drug which IS a drug deadens function as well as feeling. Any drug which has sufficient potency to kill function on efferent half of cycle will also kill sense transmission on afferent half upon which function depends. Given a healthy, normal body, feed it drugs, and you will paralyze sensitivity and function. Body will lose feeling as well as motion. If that can happen with normal resistance, how much more does it happen when person is sick, below par, when resistance to deleterious effect of drugs is present. Chiropractors who use NCM and depend upon it to determine location of interference will check to see that case does NOT take opiates, narcotics, or hypnotics. It is better to suffer one day WITHOUT aspirin than suffer years WITH it.

WHY BUILD CASE RECORDS?

Is it necessary to keep records of cases? Why keep records of any but cervical region? Are case records valuable?

Before advent of NCM, all was guess-work. We GUESSED cases were getting better, or worse. They told us and we believed. We palpated, and hoped fingers felt correctly. We asked questions on symptoms, looked at pathology (if possible), listened to what physicians diagnosed, and agreed or disagreed. Nearest we came to scientific accuracy was with meric system — and that lacked much we needed TO KNOW. We stumbled down thru years, with some truth, some half-truths, much that wasn't true at all.

Advent of NCM put Chiropractic on a new, definite, exacting, scientific road. It gave facts and figures about hidden abstracts around which so much depended. It gave efficient, accurate, competent, and reliable methods. Today we KNOW what yesterday we GUESSED.

Figures add, subtract, multiply, divide, and give numerical standards of value. IN ABSENCE OF FIGURES, VALUES WOULD BE GUESS-WORK; conclusion reached would be based on fickle memory; facts would be fanciful; accidents of mistaken judgment would be constant; differences of opinion would end in disputes and confusion. Figures identify distances, streets, homes, weights, and render securities of values that are accurate.

Life and death, health and disease have never been scientifically or mechanically MEASURED previous to advent of NCM. No instrument had been devised which MEASURED FLOW OF ENERGY WHICH WAS LIFE IN ABSTRACT. Clinical thermometers measured fever and thus measured abnormal work expressed; but no worker in science had dared hope it WAS possible to devise an instrument that COULD MEASURE FLOW OF LIFE IN ABSTRACT. NCM measures present or absent quantity of life — not in generation or expression but in transmission. NCM does to abnormally expressed excess heat LIFE FLOW OF CURRENTS what galvanometer does to FLOW OF ELECTRICITY.

Reading figures on dial of NCM is valued in reverse ratio. Two-point break reading signifies there IS a two-point RESISTANCE to transmission. It means there are two points LESS

transmission of flow than there would be IF meter read ZERO. Four-point break reading signifies TWICE AS MUCH pressure and resistance as a two-point reading. It also means there is TWO TIMES LESS transmission of flow than IF meter read two points. Meter reading reads transmission in inverse ratio. Give an adjustment and REDUCE four-point reading to two-point reading, and you have REDUCED pressure and interference one-half, and INCREASED transmission to double what it was before. HIGHER reading, GREATER pressure and resistance, and LESS transmission. LOWER reading, pressure and resistance HAVE BEEN REDUCED, transmission HAS BEEN INCREASED.

We now have at our command an accurate instrument which measures IN FIGURES resistance to transmission; locates it; determines WHEN present or absent; and gives a MATHEMATICAL BASIS OF MEASUREMENT that eliminates guess-work in that portion of the art of Chiropractic. It is important we efficiently, accurately, competently, and honestly read readings and understand what they reveal.

NCM reveals KNOWLEDGE. It accumulates comparative knowledge from day to day. It gives a sense of values TO KNOW from day to day what is happening; where and when changes are occurring. NCM recordings make possible a sense of security and confidence in accomplishment. NCM checks Chiropractor and proves where and how he is failing and falling down and is not doing thing he is being paid to attain.

A crude comparison:

From day to day, a human being sticks his hand into outside air, draws it in, and calculates what he thinks temperature is. Whether it is hot or cold can be judged only in quantities. How much? He does not KNOW. Therefore, we have thermometers. From day to day a thousand people can ALL AGREE on what the unthinking, unfeeling, mechanically accurate instrument records. It is recorded on a temperature chart. What a difference in confidence between one WHO GUESSES and one WHO KNOWS.

None of these comparative records of what happens in cases could be possible without NCM. It gives a working chart record from day to day. WE NOW KNOW WHAT TO DO.

EFFICIENCY IS A CONSTANT CHECKING
ON SLIPPING

Any old fish can float down stream, but it takes a damned live one to swim up. Paths of least resistance are what make rivers and men crooked.

We have lived with Chiropractic principle and practice since its inception. We have seen it come as an infant, grow into a boy, young man, and now assume manly stride. We have seen it come as a complete principle with no practical concept of practice to balance. We have seen it climb heights to scientific attainment against tremendous superhuman odds, fought on all sides by ignorance, incompetence, prejudice, in our professional family as well as from enemies without.

We have seen Chiropractors come, learn, listen, and heed; burst forth, go out and do wonders. We have seen some, after a time, wither and die, gradually drifting into by-paths and side-tracks until lost in medical lore, and become non-entities. We have seen other Chiropractors come, learn, heed, burst forth, go out and do wonders, AND KEEP ON thruout years, never losing, always gaining more of Chiropractic principle and practice. WHY do some climb and keep on climbing to greater achievements year after year? WHY do others begin slipping and finally slip into Chiropractic oblivion? If Chiropractic worked when they left school, for months or years following graduation, WHY didn't it work four years, ten years later? Has CHIROPRACTIC changed? Is it any less now than then? Isn't CHIROPRACTIC more now than then? Hasn't its practical application been stepped-up materially? WHY should they not do MORE AND BETTER work now than then?

We have seen thousands attend state conventions whenever and wherever CHIROPRACTIC was topic discussed. They went to learn more. We have seen other thousands who, after they left school, never attend any meetings. Thousands have attended our Annual Lyceum and Homecoming, that they might keep in touch with rapid progress of development of Chiropractic. Other thousands have never been out of their home-to-office rut, year in and year out, satisfied that what they learned in school then was all there is — there isn't any more.

We have seen progressive groups accomplish new wonders, better work, greater efficiency, more competent than before,

getting worse cases well quicker. We have seen other groups gradually fade, decrease efficiency, become retrogressive; business and income slipped to where it wasn't long before they were grouching about everything Chiropractic.

This is a never-ending procession — one group climbing heights, others walking into valley of oblivion. It has ever been such, every year, every new group that enters our profession, between 1895 and 1951.

We have seen groups come here, learn new work in spino-graphy, neurocalometer, and specific, go out and keep everlastingly at it until they build a fine clientele of established results. We have seen other groups come, learn this new work, and soon say: "I thought at first this work was better, but now I don't believe it." Didn't both of these groups return home and do greater things of getting worse cases well quicker, for several months or years? Admitted? If Chiropractic worked for several months on several hundreds of cases, following a review course or Lyceum, why doesn't it work later?

Solution is simple. Some people do not put forth that little extra energy necessary to step-up efficiency that keeps them up on tip-toe all the time. They are careless on important detail, would rather loaf than work, carp and criticize rather than struggle to think, study, and attain new ideas. They are bull-headed, thinking they know it all. Other groups are putting forth that extra energy which they find necessary to step up efficiency and keep it there, on tip-toe all the time. They do not permit themselves to grow careless on detail, would rather work than loaf, always seeking information and interpretations of reasons why of this and that, always struggling to learn, never reaching end of road of knowledge.

Every class we have had in The PSC has contained many of dying group, few of living. As tendencies manifest themselves in school as students, that is exactly what they will be in the field as practitioners, except that out there they lose that constant teacher-prodding, that bombing we place under them as students, to compel them to work, pass exams, graduate, secure a license. Some do not need that prod; they have it within themselves and keep themselves in internal evolution. They do not need external revolution.

Groups of both kinds come to our review courses and Lyceums. All get spurt of freshening new ideas. They temporarily gain new knowledge, step up efficiency of adjustment, go home, put it into action, AND IT WORKS to great delight and satisfaction OF ALL. They try the Specific and it does get worse cases well quicker than any other method they have used. Shortly after, the two groups again divide — some keeping on, growing, developing, evolving; others slowing up, slackening, slipping in their adjustment, involving. It isn't long until loafing, shiftless, lazy, careless, bull-headed group do not care, and they again run true to type. To this group, it isn't long until Specific (or any other method) is no longer workable — and of course, spinograph, neurocalometer, and Specific get back-lick as strong against it as they were once for it.

We have seen one of these groups everlastingly, laboriously working to improve their mental concepts of the Chiropractic principle and practice; constantly drilling and training themselves to give a better, faster, more speedy recoil adjustment with that extra something with staying-put value. Never, for one moment, did they allow themselves to slip or slide into shiftless, careless methods which destroy their usefulness. This type of Chiropractor has saved Chiropractic down thru the years since 1895; proved Chiropractic as valuable today, if not more so, than it has been before they entered school or since they graduated.

One vital point around which all revolves, upon which two groups of minds most divergently separate, is THE ADJUSTMENT OF A SUBLUXATION. They either DO or DO NOT IMPROVE in ability to give adjustment with that extra something having staying-put value. If correct adjustment is not given, no results are secured. When sick do not get well, mixers are bred and born in thot, action, and adjuncts. RIGHT THERE we find what a man is made of — he either checks himself and gets himself in hand, drills himself and steps up efficiency, or takes path of least resistance and begins going crooked. When any Chiropractor proves by deeds he has reached that stage of perfected-imperfection where he is satisfied he has gone as far as he can — right then he is dead in his head and only difference between him and one who is in his coffin is that he takes up more room walking around and getting in other people's way.

Show us a Chiropractor who is UP on his adjustment, even

tho he is DOWN on everything else, and we'll show you a man getting sick people well — and around that pivots everything that builds business. Show us a Chiropractor so brainy that he knows books, diagnosis, symptoms, urinalysis, etc., IF HE CAN'T GIVE AN ADJUSTMENT he is a failure getting sick people well and it isn't long until he buys and buys everything he can afford to fill up his office, to act as a substitute for the one thing he needs but can't deliver — AN ADJUSTMENT!

Word "adjustment" has changed its meaning since 1895. Today there is a marked distinction in value, methods, and results between an "adjustment" and AN ADJUSTMENT. To indolent, lazy type, an "adjustment" means punching so many back-bones here and there, with hope it might accidentally get case well. That is what his father believed; that is what he was taught; that is what he hopes next generation will sustain his opinion with. This chap "believes in progress," but wants it with everything else but that with which he is connected. To industrious, sincere, scientific, progressive type, AN ADJUSTMENT means locating with accuracy PLACE WHERE ACTUAL INTERFERENCE TO TRANSMISSION EXISTS, exactly ascertaining abnormal position of that vertebra, so doing THE thing at that place in that position that IT DOES release pressure and restore transmission; AND PROVING IT TO HIS SATISFACTION as well as others who seek POSITIVE competency in art of Chiropractic.

Just as we generalized two groups of Chiropractors on all subjects, so do we find two groups on this specific, vital issue. There are those willing, glad to go on punching backs, anywhere, any way, any time, satisfactorily convinced that everything known on subject was taught yesterday, therefore no improvement can be made tomorrow. This is type, pre-judging, who deny value of new facts produced since they graduated. They scoff rather than investigate. They move only when forced. Then there is other group who see failures strewn in past path; seek explanation in hope they can save others in present and future. They stick to Chiropractic principle but investigate new modes of practice. Eventually they direct thots to spinograph and neurocalometer, arriving finally at Specific, and find what they long have sought — THE SPECIFIC FOR CAUSE OF ALL DIS-EASE. They no longer GUESS — they KNOW.

Only difference between criminal and honest man is directed energy in one instance and misdirected energy perverted in other. Same energy can be MENTALLY made to go either direction. Honest man WORKS to be honest; crook WORKS to be a crook. Chiropractor WORKS to be a Chiropractor; mixer spends same energy going wrong. Difference between these types is that CRIME NEVER PAYS; CRIMINAL IS ALWAYS CAUGHT; CROOK IS ALWAYS FIGHTING HIS CONSCIENCE. Chiropractor who improves abilities has an anchor; he can look all men in face; look himself in mirror; is at ease with his conscience.

We have analyzed thousands of Chiropractic successes as well as failures. Whatever is in WILL COME OUT. If he is shiftless, lazy, wants to get something for nothing — and that's what is IN, it will come out under proper nursing. In analyzing successes and failures, we reach this conclusion: SHOW US A MAN VITALLY CONCERNED ABOUT IMPROVING HIS ADJUSTMENT AND WE'LL SHOW YOU ONE WHO IS A CHIROPRACTOR THRU AND THRU, NO MIXER, BUILDING A PERMANENT BUSINESS. Show us his opposite brother who doesn't care what kind of "adjustment" he gives, and he is consistently committing professional suicide no matter how he tries to bolster it with diagnosis and adjuncts.

Chiropractic is greater today than ever before. Chiropractors are greater or worse today, depending upon which type they represent.

PARADOXICAL SUBLUXATIONS

1. People can have a vertebral subluxation — and be sick.
2. People can have a vertebral subluxation — and be well.
3. People can have no vertebral subluxation — and be well.
4. People can have no vertebral subluxation — and be sick.

It is easy for Chiropractors to understand first and third statements, viz., WITH a subluxation a person can be sick; WITHOUT a subluxation one can be well. Reverse is difficult to understand. Interval of TIME makes difference.

Let us analyze second statement. A subluxation may occur at 6:00 a.m., January 1st. It might be days, weeks, or months be-

fore an acute or chronic condition grows enough to make manifest its existence to educated minds. Tumor might be months gradually growing before it becomes noticeable. Meanwhile, case does not know he is sick — feels fine.

Analyze fourth statement. Adjustment might be given at 6:00 a.m., June 1st. One adjustment corrects subluxation. Two minutes later, NO subluxation exists. Tumor which has taken six months to grow still exists, and more than likely will exist until tumor UNgrows, which might take months, weeks. Case could feel sick, yet NO subluxation exists.

“Torque” is a cork-screw triangular direction subluxation, listed as atlas ASL or axis PRI, etc. It means that vertebra when subluxated was distorted into a three directional twist or kink. Adjustment is delivered in inverse direction. If atlas is ASL, adjustment would be PRI. If axis is PRI, its adjustment would be ALS. Often we refer to adjustment as a “torque adjustment.” For this reason we now call particular attention to new interpretation of spinographs. Lateral views give some of these directions; A-P views give balance. That is why it IS important BOTH views be taken, for no one view gives ALL directions.

This knowledge IS important. No human fingers can palpate it; no human sense can look upon outside of human flesh and see it inside. Spinograph is NECESSARY aid to reveal what is necessary to see inside, that a Chiropractor may KNOW rather than guess position of kink.

As it took courage to suggest new principle of HIO, then later its practice, to exclusion of all other principles or practices, so will it now take additional courage for our profession to make this next important step upward in solution of positive, exacting, and definite specific. We have thoroly tested it in clinical research work before suggesting it to the profession. Desiring to increase percentage and step-up efficiency in getting Chiropractic problem cases well in quicker time, with Chiropractic alone, we suggest you confine interpretations of spinograph films to this new system; adjusting exclusively by interpretation of them from this directional torque twist which always exists.

At first you will have difficulty in seeing kink, twist, except in worst cases. Keep seeking and you will see it in all — some more,

some less. Here again, as in all phases of our work, you will need keep checking yourself. You will be unconsciously slipping back into reading films OLD way and your percentage of results will drop. CHECK UNTIL IT HURTS, ALWAYS, IN ALL WAYS.

Hands do what mind directs; they can do no more than mind conceives. That establishes difference between artist and laborer. Both may use paints; one splashes color on a barn, other puts brains on canvas, via hands. One has developed creative mentality which directs hands; other has a mind undeveloped that moves hands. It is that difference in mental creative development that steps any person out of ordinary ranks and puts him into higher brackets of efficiency, accuracy, and competency in work. If a Chiropractor had never seen a vertebra, his mind could not conceive an adjustment. If a "chiropractor" has never studied a vertebral column, his hands will push bones. If a "chiropractor" has never studied Chiropractic, his mind will think and his hands will do what he conceives, viz., mixing. Greater the concept of Chiropractic principle and practice, more extensive understanding of a vertebra, vertebrae, relationship of vertebrae, movements of vertebrae upon each other, special and differing relationships of special vertebrae with co-respondents. All these give a keenness of understanding, building of mental pictures, clarifying process that builds artist, which makes more possible a more correct adjustment.

It is common knowledge, generally conceded, frequently stated and agreed, that "there is something uncanny about B.J.'s adjustment — something none of the rest of us can get or have gotten. He seems to look right thru you and see the subluxation. He can feel and know. He gives an adjustment with an uncanny accuracy of repositioning it," etc. We deny that premise. There is nothing we have which other can't get if they go after it as we did. Thomas Edison was considered "inspired". He resented that inference. He defined "inspiration" as 98 per cent perspiration. It IS true — there IS something uncanny about our adjustment. That "uncanniness" was trained by long hard hours. That "uncanniness" consists of thousands of hours of seeing, looking at, studying, palpating thousands of vertebral osteological specimens, pathological, traumatic, and anomalous, in finest osteological collection in world, collected for that purpose — a collection owned

by The PSC. So keen NOW is that mental picture that we have frequently taken five vertebral columns, mixed loose vertebrae in one box, in one mixed group. Blindfolded, we picked them out, one by one, sorted them, arranged them, and put those five spinal columns together without one mistake, by sense of touch. This "uncanniness" has been trained in, after years of building a keen mental conception of vertebrae.

When we have a vertebral dislocation for adjustment — which is rare, thank goodness — we take spinographs and study them by the hour. It does not take AN HOUR to read specific nature of dislocation, but it takes not less than two hours of intense concentration upon spinographs to burn that picture into our mind. There is to come ONE SPLIT SECOND when we are going to give an adjustment upon which life will hinge, either way. At that ONE SPLIT SECOND, we will have NO TIME to think about what WE WOULD LIKE TO DO. THAT must be thot in advance, thoroly and completely; finished action must be completed mentally before first physical move is made. We will have no time then to prepare, to get ready, to commence, to begin thinking about what we would like to do. THAT must be thot in advance so it IS a fixed thot for action. When adjustment IS given — that is when arms move, brain was set by several hours' advance thinking. Friends call this advance preparation "uncanny" insight. If there be "uncanniness" about our knowledge or ability in adjustments it is brot about by years of thousands of hours of burning a mental understanding of work to be done, media upon which it is to be done.

(We can conceive of no more valuable item constantly at hand than a cat-gut-strung human spinal column, or at least an atlas, axis, and third cervical. We have original spinal column purchased by Father. It has been picked up, looked at, studied thousands of times. In our traveling bag is an atlas and axis. Idle moments can be valuable moments. Take atlas and axis and palpate one or other. It develops sense of touch and clarifies mental picture. It is this "extra development" that takes ordinaries out of "also ran" and builds champions of first rank.)

Do not interpret films in light of WHERE interference is — meaning, because there is a 4L between atlas and axis, do not read films concluding that kink or twist is of a certain vertebra and in certain direction to correspond. Kinked vertebra may be

either atlas or axis (and it is vitally necessary YOU KNOW WHICH if you desire to step up percentage, reduce time, increase staying-put value — which, after all, means being a BETTER Chiropractor).

We have presented new light on question; have caused area to be confined to a specific location, with a specific condition to be sought and seen, requiring specific adjustment to reverse it. With reason given, we have moved upward one more important step in correct establishment of greater knowledge of EXACT SPECIFIC FOR CAUSE OF ALL DIS-EASE.

For first time (1933) in 23 years of spinographic research, studying hundreds of thousands of plates and films, we have laid down a certain definite, specific, positive MECHANICAL CONDITION OF A MECHANICAL SUBLUXATION at a place where certain mechanical motions can and do occur which do not occur any other place in similar manner. Mechanically, atlas and axis are more vulnerable in characteristic motions than other vertebrae in spinal column. In past, we have looked over twenty-four vertebrae for "subluxations", never knowing exactly what, where, or how. Gradually, we reduced it to majors which consisted of a few of the twenty-four. Now we know there definitely exists in every sick person a kink, twist, wrench, or torqued vertebra which will be found in superior cervical vertebrae.

- For first time, you have a definite mechanical condition to see
- at a definite mechanical place to look for it
- knowing it will be definitely mechanically existing
- which does not duplicate itself anywhere else in spinal column
- which lateral and A-P spinographs will definitely reveal
- which can be definitely adjusted, mechanically
- which will definitely release a mechanical multiplicity of pressures
- which will definitely and mechanically stay put if correctly reversed in direction in adjustment process
- which will spinographically prove definite correction
- after which all misalignment below will as definitely and mechanically fade out of spinal column without further ado about or upon them directly.

This new work requires exacting use of spinograph and careful use of neurocalometer. Essential issue is that you **MUST** adjust **ONLY** when there **IS** interference; you **MUST NOT** adjust where there is no interference; you **MUST KNOW** when you have or have not given an adjustment, releasing pressure; that presence of a kink or twist of a vertebra as revealed by spinograph is not sole or only guide to follow in giving an adjustment. If it were, you would "adjust" atlas or axis and many other places every day, and be right back to general adjusting, meric system, majors and minors, without added improvement or step-up in efficiency. There is no other way **THIS** information, as to existence or absence of interference and when present or absent, can be ascertained **EXCEPT BY COMPETENT, EFFICIENT, HONEST USE OF NEUROCALOMETER.**

There is a different limited mechanical motion of rotation and extension between occiput, atlas, and axis. If this motion is confined to within its natural, normal bounds, there ordinarily would not be any possible pressure or interference at this vital place. We doubt if there is one film in five hundred — either lateral or A-P — which shows these three (occiput, atlas, and axis) in normal relation to each other. On reverse, they all do show a mal-position in juxtapositions.

To know actual location of pressure is vital. We doubt if there can be **ANY** pressure between vertebrae in intervertebral foramina. There may be merit in general statement made by anatomists and neurologists that space is **SO** large and nerve **SO** small it **IS** impossible to have pressure there. We have at least progressed far enough in our research work to be completely satisfied that there are no pressures at intervertebral foramina **BELOW** third cervical, in any of the balance of cervical, dorsal, or lumbar vertebrae. It may be true that pressures are confined to intervertebral spaces enclosing, surrounding, and constricting **SPINAL CANAL**. Actual displacement possible, as we go inferior, becomes micrometric in its minuteness, getting less the farther down we go, even tho vertebrae get larger and number of fibres diminish. Actual displacement possible, as we go superior, becomes greater in magnitude, getting larger farther up we go, even tho vertebrae get smaller and number of fibres multiply.

Vital spots to keep in mind are:

- (a) between inferior surface of magnum foramen and superior surface of superior ring of atlas;
- (b) mal-position of odontoid process as it squeezes itself into spinal canal because of distortions existing between atlas and axis;
- (c) between inferior surface of atlas and superior surface of axis;
- (d) between inferior surface of axis and superior surface of third cervical.

It is this intermediary space BETWEEN inferior AND superior surfaces which is VITALLY affected IN MAGNITUDE mechanically which gives THE specific pressures that become of such importance in THIS PARTICULAR REGION.

When observing these kinks, twists, wrenches, or torques, see what is ACTUALLY direct effect of intermediary spaces mentioned, as well as size, shape of spinal canal because of odontoid process.

PRINCIPLE of "cord pressure" was laid down in Volume III in 1906. Practice of it began then. WHEN to apply it, in what cases, etc., were problematical, hypothetical, and accidental. New question of kink, twist, wrench, or torque as to WHY it is important AS MECHANICAL CAUSE AND LOCATING FACTOR OF THIS "CORD PRESSURE", as now combined, is practical — more than presented before.

Neurocalometer will give information of break-reading heat-interferences as to location of cord pressure, as determined by heat-readings upon fibres under pressure IN THE CORD as they branch from and proceed to exit between intervertebral foramina, same as you can read extensions of fibres below as they exit from inferior intervertebral foramina. Spinograph gives detailed pictorial proof of kink, twist, wrench, or torque itself, and its exact location. Information gained by BOTH methods puts you in a position to give a CORRECT adjustment upon THE vertebra subluxated to release pressure and permit restoration of normal quantity flow of mental impulse supply to all the body, and relieve brain congestion above, and cure organic or functional dis-ease below.

WHAT WE NOW MEAN BY "HEAVY" OR "LIGHT"

Once upon a time we talked about giving "heavy" or "light" adjustments. We used terms to indicate we THOT a "heavy" one would move vertebra much, and "light" one would move it little. WE BELIEVED there were times, cases, and conditions which needed "heavy" or "light" adjustment. Which case needed which, was a guess — yours was as good as ours.

We did not KNOW whether "heavy" adjustment did MUCH good or MUCH harm; whether "light" one increased or decreased pressure. If we had SUSPICION "heavy" adjustment was NOT getting results, we gave "light" ones to still give patient "his money's worth" to prove we WERE interested in his case. Oftentimes, we gave "light" adjustments, pleasing him.

All this was outcome of our having NO WAY OF KNOWING when an adjustment HAD been given.

Today, NCM proves when there IS interference, when NOT; where it IS, where NOT. By contrast, it proves when we have or have not given AN ADJUSTMENT. Adjustments are not given now on suspicion, belief, or guess. If we give an adjustment today, where and when needed, we KNOW it and there is no occasion to fool patient destroying his confidence in facts by giving him "light" adjustments at other places. If we give an adjustment today, where and when needed, we KNOW it; and when case returns tomorrow and there is no subluxation, no interference to flow of mental impulses, it would be non-scientific to give "light" adjustments at unnecessary places to "please patient" and thus destroy confidence in ourselves, as well as his confidence in us.

Today, an adjustment either IS or it ISN'T. There is no "heavy" or "light" adjustment, which language grew out of dark days when ignorance was bliss and it was folly to be wise.

AQUARIAN AGE HEALING — WHAT IS IT?

Hurley and Sanders (man and wife) are editors of a book under title AQUARIAN AGE HEALING FOR YOU. Book contains 200 pages, one-half of which are devoted to subjects not apropos. Out of other 100 pages, one-half are devoted to expo-

sition of technic. That which justifies printing could have been encompassed in 50 pages and told the story.

About 1926, Dr. Hurley, practicing in California, presented his ideas to us. We went over them carefully, saw nothing CHIROPRACTIC in them, and told him so. For five years, matter was not presented further. About 1931, Dr. Hurley again presented them. We saw nothing more in them. Following ICC-NCA convention at Louisville (1931), they again came to our attention thru a third party passing thru. Comparative tests were made and published in *THE HOUR HAS ARRIVED*. This again justified two former opinions.

Hurley claims to be discoverer of idea. He so claims in his book. He claims his system can be taught lay people. We quote him in this respect:

"We know that now for first time in history it is possible to point out so clearly and teach so simply what causes pain and disease and how to ameliorate them THAT THE AVERAGE LAYMAN CAN LEARN THAT ART WITHOUT TROUBLE AND APPLY HIS KNOWLEDGE SUCCESSFULLY." Page 6.

"This book is written for the layman. We believe, and we hope the belief will prove to be well founded, that any person who will take this book, read, then study its contents, perform the routine necessary, carefully, accurately, and exactly in accord with the directions given, will find himself able to perform all we promise." Page 9.

"Third, personal teaching and training of professionals in this work has progressed to the point where it is possible to put on lay-class instruction at very reasonable charges, and upon request, in any district where this book is placed on sale." Page 165.

"It is earnestly recommended by the authors, if any difficulty is experienced in the application of this teaching, that you take this action, for we repeat again what we have said repeatedly throughout the book, THIS SECTION ONE AS TAUGHT HEREIN, POSITIVELY will restore any person who is sick, to full and normal health, regardless of age or condition, when it is properly applied, and its proper application can be successfully taught in this class work to any layman without previous instruction or knowledge of any sort beyond the will to learn and the ability to understand his own language. And this statement rests on trial and proof that is as positive and definite as every other statement contained within these covers." Page 166.

"The same is true of this book. IT WILL TEACH ALL THAT ANYONE NEEDS TO KNOW IN ORDER TO COMPLETELY MASTER ALL PAIN AND DISEASE." Page 169.

What does Dr. Hurley offer? What are his statements? What does he claim for his system? Let us quote:

"That promise is that the method herein taught will INSTANTLY STOP ANY PAIN."

"This book teaches no miracles, and in cases where there is a long standing structural change, degenerative disease, etc., time must be allowed for the body to rebuild itself. However, ANY PAIN can be CONTROLLED by proper application of the technic." Page 58.

See also above quotation from page 166.

Is AQUARIAN AGE HEALING Chiropractic? Hurley will tell us it is not.

L. M. Van Amburg, D.C. (Dec. 11, 1932) says:

"***** and every bit of it is pure unadulterated Chiropractic, dealing only with the spinal column, and follows the Chiropractic philosophy in all respects."

Jonas K. Cheney, D.C. (Jan. 7, 1933) says:

"I stress the contention that some 400 representative Chiropractors have thus found basic technique to be a true application of Chiropractic principles and that its application constitutes a true spinal adjustment accomplished with only such degree of force as could be comfortably received upon the eye-ball. Basic technique instruction affirms the Chiropractic purpose of a manual application of such force as is required to accomplish a correction of vertebral disrelation, for the express purpose of the removal of nerve interferences, which are declared to be the primary cause of all disease."

C. E. Parsons, D.C. (Jan. 19, 1933) says:

"I do not know what the Logan system is at this time. He was teaching the Aquarian Age when it was first announced."

Dr. Hurley again says:

"It is now known that the loss of 'Mental Impulse' in the tissue cell which Dr. Palmer ascribed to the pressure of a bone on the nerve carrying such impulse, DOES NOT OCCUR. It is known that the nerve does not come under any considerable compression by any slight slipping of any vertebra on account of the bedding of all such nerves in a protective fatty covering as they emit from the spine and on their passage through the opening. It is also known that the idea Dr. Palmer proposed that the brain converted 'life forces' from the Universal forces and supplied each tissue of the body with this force and that this supply was the total supply that any tissue could have, so that any interference with that supply meant disease and lack of function at the place in proportion where and as the nerve carrying it normally ended IS ALL ERRONEOUS because the nerve itself as a transmission line is incapable of transmitting any such amounts of force. It DOES transmit small electrical impulses amounting to 5 to 50-millionths of a volt, according to Dr. Detler W. Bronk of the University of Pennsylvania,

which set in motion the power machinery of the cell, tissue or organ, and without the activating impulse, there is no response.

"The typical response, however, may be elicited by means of very small electric impulses or by any means of stimulation other than electrical, through the nerve, through adjacent tissues or if directly applied to the tissue itself, as any well conducted experiment will invariably demonstrate, thus proving erroneous the idea that the evanescent, intangible, almost spiritual thing that Palmer talks about is totally imaginary and is not in any sense the thing it is said to be.

"This does not mean to say there is no such Universal Force or even that the human brain or body is unadapted or incapable of making such a contact as Palmer suggests. But it is a purely speculative and philosophical idea that has absolutely no importance in health or disease at the present time, for it has been amply demonstrated that independent tissues, both in or out of the human body and not connected with any transforming unit such as Palmer imagines the brain to be, continue to live and thrive just as though they were connected, an activity which would be totally impossible if Palmer's theory were correct. Pages 27 and 28.

"It is necessary to form a very clear understanding of these concepts because this whole method is not in any sense Chiropractic or Osteopathy, or any one of the older healing arts. IT IS A TOTALLY NEW SYSTEM, based upon these concepts and unless they are completely and thoroughly understood, your practical application of the technic will be faulty." Page 45.

We give Dr. Hurley credit for being frank, open, and honest about his idea, that it is NOT Chiropractic. Altho not in any sense Chiropractic, either in principle or practice, Dr. Logan teaches it is, based on verification in much correspondence from Chiropractors who have taken his course.

"Such movement is not corrective, because as soon as 'contact' is removed the pain will return unless a true correction of the sacrum has been made by a very light, accurate thrust, as will be explained in the Technic. In the latter case and providing no error is permitted, the pain will not return and the trouble that caused the pain to begin will be better and will get well from that moment on.

"The thrust indicated is by no means the heavy pound so long used by Osteopaths and Chiropractors. It is sufficiently heavy to 'slightly spatter a cranberry' as taught in this book and it is only by understanding the balance of this chapter that you will realize that it is far more effective, because it must be exactly right in contrast to the older 'adjustments' of the same bone, which were usually 'exactly wrong.' We believe that it is only the tremendous ability of the body to adjust itself to new conditions that has prevented a large number of serious results from these older methods, because with this work the slightest error will produce such instant and such disastrous results that no other possibility remains." Page 71.

"Years ago when Dr. Hurley was implicitly BELIEVING ALL THE SO-CALLED Philosophy of Chiropractic and getting people well by 'adjustments' he was making regular calls on a lady of sixty odd years and was making some progress with the case." Page 128.

"Any man who has previously been engaged in any branch of the healing art other than this, has so many things to unlearn, BECAUSE THESE TEACHINGS ARE SO DIAMETRICALLY OPPOSED TO ALL THAT HAVE GONE BEFORE, THAT HE IS NOT MORE COMPETENT, BUT ACTUALLY LESS SO THAN YOU YOURSELF, TO MAKE A PRACTICAL APPLICATION OF THESE TEACHINGS as we have amply proven in our class work by the greater difficulty of teaching this section to professionals of any school than we have experienced in teaching the same work to any layman." Pages 163-164.

"By the above we mean as has been explained that this Aquarian Age Healing IS NOT ONLY A NEW METHOD, BUT BASED UPON ENTIRELY NEW CONCEPTIONS, AND NO M.D., D.O., D.C., OR ANY OTHER KIND OF DOCTOR HAS ANY BASIS FOR OPINION WITHOUT FORMING SUCH BY CAREFUL STUDY AND APPLICATION OF THE PRESENT MATERIAL." Pages 170-171.

What IS the Hurley AQUARIAN AGE HEALING system? What are its principles? What is the contending idea? We have analyzed the book and it is explained spattered thruout the book. Following extracts will give meat of issue:

"Our idea is that this overstretched muscle is also responsible for the 'acid areas' which exist around the congestion of the Osteopath. Jerome Alexander states, 'If anything prevents the capillary from opening again at the proper time, we have a vicious circle—an "acid" capillary surrounded by "acid" tissue—and leading to congestion or inflammation.'" Pages 29-30.

"The medical people have for many years past, and are recognizing more and more the fact that distortion or lack of symmetry of the body plays an important part in disease, because definite types of distortion are always present in each and every disease. But their training is not sufficient along mechanical lines to allow the rapid and intelligent development of this idea. The Osteopaths began and the Chiropractors have continued along these lines, but never developed it to its logical conclusion. It took the combined experiences of the Osteopaths, coupled with Dr. Hurley's wide and varied experience and knowledge as an engineer as well as seventeen years of continuous practice as a Chiropractor, to allow rapid development along these mechanical lines. We have only begun, but this present work is far in advance of anything known before, as you will readily appreciate when you develop the understanding and skill required to practice this method." Page 30.

"Most of these distortions have passed unnoticed until now because this volume, for the first time in the history of the healing art, systematizes

the investigation of them and shows in detail the manner of their correction and bases a complete system for the restoration of health upon their observation and correction. Naturally small attention was paid to matters for which no correction was known." Page 34.

"These distortions are the unfailing indices that Dr. Hahnemann sensed but never found. The distortions and their correction which this volume teaches, continued to engage the minds of men, and in 1874, Dr. A. T. Still announced the school of Osteopathy. He taught the recognition of some distortions and means for partially correcting some of them. Unfortunately his successors, finding conditions they could not identify or correct, have taken the wrong road and instead of discovering just where the troubles lay, have adopted all sorts of auxiliary methods to improve results, finally losing sight almost entirely of their original principles. The Chiropractors have done exactly the same thing, and this book again brings the subject back to its broad fundamentals, and shows how to do the thing all others have tried and failed to do." Page 36.

"The cellular and intercellular tensions must be corrected so as to remove all strain, destroy all distortion, correct all disabilities, rehabilitate all vital powers, in short, bring all matter—ships, buildings, or men—back to maximum usefulness in exact proportion as it is accomplished, by the correction of FATIGUE." Page 38.

"Exhaustion is the only cause of Death.

"Degrees and amounts of Fatigue measure the approach of Exhaustion.

"Fatigue is some degree of Exhaustion.

"Disease is some degree of Death.

"Degrees and amounts of Disease measure the approach of Death." Page 39.

"The sacrum has the most powerful muscles of the body attached to it and these muscles are in balance, therefore free from pain, only when the sacrum is exactly in the position normal to it. Any slightest deviation disturbs this balance and puts one or more of these muscles under continuous stretch, which is destructive to it so far as the condition of the muscle from a physiological standpoint is concerned, exactly as continuous contraction without rest does, because such muscles, or a man possessing such muscles, cannot rest. Physiologists state that muscles are highly extensible because of their great ability to restore themselves to normal length and girth after considerable deformation. But muscles are almost completely inextensible as regards their power to grow into or adapt themselves to a greater distance between their bony attachments or their origin and insertion.

"It is one of the functions of these muscles to change the relative position of one part of the body to that of some other part. The muscle thus, to use a crude illustration, plays the part of a man on the end of a lever, each joint furnishing the fulcrum around which the lever operates. Just as the man must have some solid point to stand on, a fulcrum around which to exercise his power, and a movable point for the lever to effect; so the muscle must have a part of the body which does not move (point or origin) and a fulcrum (formed by the joint) and some other part of the body which

must move in response to the effort (point of insertion). So it will be seen that at least insofar as the skeletal muscles are involved, there is no purpose in attaching both ends of a muscle to the same bone, for if this were done the only effect of contracture, which is the normal activity of muscle, would be merely a bending effect upon that bone. And so we see that the relative position of the bones to which the two ends of a muscle are attached must remain in normal relationship, be restored to such relationships or reflect their difference in abnormal conditions imposed upon the muscle that attaches to them.

"If these two points normally are, say six inches apart, and some force changes the skeletal relationships to six and a quarter inches, the muscle does not change its length and grow into a normal condition of its minute structure so long as it is forced to bear this stretch. **IT IS DIFFICULT TO MAKE THIS POINT CLEAR**, yet the whole of disease and its explanation hinges upon the proper conception of just this idea." Pages 51-52.

"It depends entirely upon the character and extent of the slip at the sacrum what distortions occur at other points, their degree and their effect." Page 53.

"Muscle is fatigued only by contraction without rest (rest-oration).

"Fatigue accumulates acids, which normally are removed from muscle in rest periods. Continuous contraction or stretch prevents this process.

"Fatigue poisons accumulated result in Acidosis.

"Acidosis is thus a measure of Fatigue and Exhaustion; disease and Death." Page 55.

"Consequently the proper point of attack for the complete correction of these distortions is of prime importance. It has previously been stated that this point is the sacrum and now we must attempt to understand why." Page 62.

"It is self-evident that if a person were free from distortion, then something would need to slip or break before a distortion of any sort could occur and if the sacrum represents the 'slip point' then it would be reasonable to look to the sacrum for a means of correcting any distortion that had occurred. If, as has been shown, all pain and disease are the result of distortions, then a correction of the sacrum, which corrects distortions, would necessarily stop pain and remove the fundamental cause of disease. It is the positive knowledge from practical experience that this occurs that warrants all the preceding." Page 63.

"There is still another factor. While it is true the sacrum rests on a jelly-like mass and that these muscles are all trying to restore themselves to equilibrium by restoring the sacrum to its normal position, it is also true that these pulls have the effect of producing a further 'floating' effect and so a very light pressure will somewhat move it and to some extent cause beneficial changes sufficiently to stop pain, and this can always be done. Pain will instantly stop — anywhere from any cause — **IF PROPER CONTACT IS MADE AND HELD.**" Page 70.

"Any consideration of tissues depends for improved understanding of the subject upon a clear conception of just what is being discussed. The body is a vastly numerous group of cells, all essentially alike. Each possesses a nucleus, cytoplasm and a cell wall. In chemical reaction in the nucleus is positive and acid, the cytoplasm negative and alkaline, while the cell wall is a fatty membrane resistant to the transfer of electrical energy. Within the cell wall are other fatty membranes, since each cell is in miniature a solar system and each part of that system duplicates the structure as a whole AND SOME STATE OF ELECTRICAL IMBALANCE EXISTS.

"So long as this imbalance continues, the cell remains alive and able to carry on all of its marvelous activities. Just as soon as any chemical or electrical change occurs to disturb the acidity or positiveness of the plus elements or the alkalinity of the minus elements, just as anything reduces below normal the electrical or chemical imbalance, the cell becomes fatigued, then diseased, and if this disturbance continues until the imbalance is destroyed, the moment at which it is lost is the moment at which that cell ceases to live. The same is true of any group of cells making up a skin area, a vital organ or the entire body and the approach of DEATH CAN BE MEASURED WITH ACCURACY BY OBSERVING THE GRADUALLY DECREASING ALKALINITY OF THE FLUIDS OF THE BODY. THE INSTANT AT WHICH THE REACTION OF THE BLOOD CROSSES THE LINE AND CEASES TO BE ALKALINE IS THE INSTANT AT WHICH DEATH OCCURS. This is not just a symptom of death. It occurs at that moment, and the reason is that the electrical energy, which is the life force, remains only so long as the chemical imbalance remains and its tension exists in the exact degree that this chemical acidity and alkalinity persist." Pages 76-77.

"If all troubles have their origin in muscular tissue as already shown, then those we would be most conscious of would be found in the most muscular structures." Page 81.

"As previously stated, Fatigue and Disease are synonymous, and all knowledge carries out the statement. Then Rest and Rest-oration are synonymous. No disease is cured by any other method. No method is worthy of any consideration except it is conducive to this end." Pages 93-94.

"Trouble in the above-mentioned areas is strictly muscular in origin." Page 96.

"It does continue and must continue, no matter how great the faith, no matter how great the negativity, and will produce death BECAUSE THE DISTORTION THAT CAUSED DISEASE WILL SOONER OR LATER DESTROY THE VITAL POWERS OF THE ORGANISM exactly as in the case of the Diabetic who does not know he is sick." Page 107.

"They are all SECONDARY, and the primary or acute disturbances which gave rise to them WERE ALL MARKED BY CONDITIONS IN WHICH THE SUFFERER ACTUALLY HAD DISEASE IN THE CONSCIOUSNESS BECAUSE OF PAINFUL IMPRESSIONS AND THESE WERE THE EARLIEST SYMPTOMS OF DISEASE." Page 108.

"The practice of surgery and all other specialized practices shall be separately and likewise defined. For instance, Aquarian Age Healing should be defined as a science, art, and philosophy for the removal of strain and the correction of distortion in the human body. As applied to the individual human body, its fundamental principles ARE BASED UPON THE IDENTIFICATION OF FATIGUE AS DISEASE AND THE ONLY CAUSE OF PAIN. Overstretched or contracted muscles are muscles in a constant state of fatigue and muscles in which rest or restoration cannot be obtained, and a condition in which thereby pain, fatigue and disease constantly accumulate. This accumulation of fatigue and its poisons is marked and measured by the degree of acidosis, hydrogen-ion concentration, present at any moment generally or in a localized area and furnished an exact measure of the approach towards death of the patient or the part, at that instant, since death is exhaustion and exhaustion is the iso-electric point of the body colloids. THESE MUSCULAR CONDITIONS RESULT ONLY FROM DISTORTION; DISTORTION RESULTS ONLY FROM STRAINS WHICH HAVE EXCEEDED THE ELASTIC LIMIT OF THE BODY that sustained them at the moment of their imposition AND ARE REPRESENTED BY STRUCTURAL DISRELATIONSHIPS which can be measured by determining departures of the body that sustained them from its normal gravity line.

"Since in any structure, distortion of the whole reaches its greatest magnitude in the center of gravity of that structure, any distortion of the human body reaches its greatest magnitude at the center of gravity of that body. Since in any structure, in order to restore it to normal relationships, it is necessary to restore its center of gravity to its normal position, SO IN THE HUMAN BODY THIS IS THE ONLY REQUIREMENT FOR THE CORRECTION OF ANY DISTORTION OR DISEASE BECAUSE WITHOUT DISTORTION THERE IS NO DISEASE.

"Aquarian Age Healing, based upon these principles, teaches the correct measurement of these distortions, the correct estimates of the approach to death and a simple, easy, totally painless, COMPLETE AND PERMANENT METHOD FOR THE RESTORATION OF THE CENTER OF GRAVITY OF THE BODY AND ALL ITS PARTS TO THEIR PROPER RELATIONSHIPS, THEREBY DESTROYING DISTORTION, REMOVING STRAIN, STOPPING PAIN, CORRECTING ACIDOSIS AND ALL ITS ATTENDANT EVILS, and completely restoring the body in all its parts and as a whole, to perfect health and function." Pages 156-157.

When the reader has read our analysis of the Hurley system, it is apparent there is much hokum perpetrated upon the profession to get the system adopted. Especially is this true under the heading of "dangers in its use." There is always danger in use of any system applied to human body. When that "danger" is aroused around a question that is bunk, it is to be questioned as to its merit.

Dr. Hurley, bearing upon this question of danger, says:

"First, because THE DANGERS WARNED AGAINST IN THIS BOOK ARE SO GREATLY MULTIPLIED IN THE ADVANCED WORK THAT IT IS UNSAFE FOR ANYONE, NO MATTER HOW WELL EDUCATED, NO MATTER HOW SKILLFUL IN OTHER METHODS, including the medical doctor as well as others, to attempt their use without personal instruction and close supervision during the class work. For this reason, our classes are limited to twelve students under any one instructor at any one time. And, even with this close supervision, we have never yet succeeded in running a professional class WITHOUT SOME SLIGHT ACCIDENT OCCURRING." Page 164.

"For that reason, all material is copyrighted, all rights reserved and otherwise protected from any use by unauthorized people, and the professional who attempts to engage in the work without having entered one of our classes is therefore cheating us, BESIDES DOING GREAT DAMAGE TO YOU." Pages 164-165.

"This book is dynamite. No one with any common sense would get rough with dynamite. If he needed it, he would take care to understand how to make it do the things he wanted done, without getting himself into trouble with it or blown up by it. The same is true of this book." Page 169.

"AS THIS WORK IS SO DANGEROUS, this last determination is the most important of all to get accurately for if you are careless in this one the damage you will do will be widespread and difficult to correct." Page 178.

"If you do not heed this warning and insist on holding a contact that is wrong, your patient will fall over and he will be sick. If there is no one near who is skilled in this work, it may be necessary to call in someone to give a hypodermic to produce temporary relaxation of muscles you caused to contract, due to the strain you placed on him by your wrong contact. Of course it is more desirable to call in someone skilled in this work to undo the damage you caused, for otherwise the damage will be to some degree permanent. It is possible to produce a typical case of appendicitis in three minutes in certain types of distortion, and it will continue to grow worse and will endanger the life of the patient if something is not done about it." Pages 183-184.

"Your patient MUST NEVER MOVE WITHOUT YOUR PERMISSION. If he moves while under contact, it produces an adjustment which is usually wrong AND IS MANY TIMES MOST DIFFICULT TO CORRECT." Page 185.

"Play safe. The patient's health, comfort, HIS VERY LIFE MAY DEPEND UPON YOUR ACCURACY. YOU ARE AGAIN CAUTIONED TO NEVER MAKE A THRUST OF ANY KIND UNTIL YOU HAVE ELIMINATED EVERY TENDER SPOT." Page 197.

"It is difficult, both for the professional and the layman to understand the dangers of this work and even at risk of becoming tiresome, we must once again, with all our force, warn you to follow this technic in every detail. Do not permit any variation at all." Page 199.

Practical idea which makes Chiropractic practical is there IS a BEGINNING in solution of problem of cause. With Dr. Hurley, we find him rambling about, never satisfied as to THE beginning of ANY definite, specific, exacting CAUSE. We fail to find, in careful analysis of his book, what IS beginning of ANY cause, anywhere located.

Here is an example of his reasoning:

"A severe blow in the shoulder, for instance, may increase an already existing distortion (in which case the body is out of balance) because muscle REACTS TO ANY SUFFICIENT STIMULUS by contracting, and blows ARE MECHANICAL STIMULI. Put such stimuli from a sufficiently heavy blow into a muscle ALREADY UNDER ABNORMAL CONDITIONS and instead of being cushioned by the normal elasticity of muscle, it will be transmitted, exactly as it would be by a steel cable, directly back to the sacrum and there increase the original trouble that had left the muscle in an over-taut or contracted condition. Same thing can happen from an injury to a toe or finger, or any part of body, or may arise from any vital organ or even strong emotions, such as worry. This is why any slight correction of the sacrum has instant and widespread effect." Page 69.

"And now again, and while admitting that these subjects will demand further research, we assert that the technic herein taught is the best, surest, and safest means of securing RELIEF FROM PAIN and an uneventful recovery, even in these cases.

"Always remember — REST IS THE ONLY CURE." Page 130.

"It has been amply demonstrated by experiment that living tissue, free from strain and accumulation of waste products, and when properly nourished and under proper temperature conditions, IS IMMORTAL, and that moreover IT WILL DESTROY DISEASE WITHIN ITSELF and gradually restore itself to normal condition in the process of its own cell division. Since the proper food and temperature conditions are easily obtainable by everyone, since rest and the removal of waste products are the only other essentials necessary for the immortality of the cell, since this Aquarian-Age Healing provides rest and the removal of waste products of the cell, and since the human body is merely an organized system of cells constantly undergoing the changes that make them perfect AND IMMORTAL, IMMORTALITY OF THE BODY with restoration and preservation in the maximum degree of all the powers of the body, including the mind, is the end sought and taught herein as ultimately possible." Page 157.

With all this peculiar denial of Chiropractic, yet Dr. Hurley returns to it in his book. Let us quote him:

"All living matter has what we call life force. It is this only which distinguishes living forms, and the mystery of life is really the mystery as to

why and how a cell materially similar in every respect to a non-living cell can continually discharge energy, that is, continue to carry on the evidences of life. Every explanation or concept of the cause of disease and its correction WHICH FAILS TO TAKE INTO CONSIDERATION THIS GREAT MYSTERY MUST NECESSARILY FAIL TO EXPLAIN OR CHANGE SMALLER DEPARTURES FROM NORMAL than are required to reduce living matter to non-living matter. That is, a system for the correction of disease in order to be successful must explain just what happens in such a case, why and how and show the relation between this process and that which occurs in the human body when disease or death occurs and how it is controlled or improved by such method. It is this which we claim to explain, correct, and restore." Page 75-76.

"All the processes of living depend upon action. Action requires power and the exercise of power is the most positive thing that man is capable of and so far as the finite mind can imagine, it is also the highest and most positive attribute of God. It is the God force in man, the wider creative power that makes him the superior animal." Page 106.

"Nor would we fail to use all active methods if we were called in on a case of coma resulting from uremic poisoning, so long as the life was in imminent danger. Having rendered the danger of death less immediate, we would make all speed to find the contact and correct the condition. Years ago when Dr. Hurley was implicitly believing all the SO-CALLED Philosophy of Chiropractic AND GETTING PEOPLE WELL BY 'ADJUSTMENTS' he was making regular calls on a lady of sixty odd years and was making some progress with the case. He says, 'She was emaciated, suffering severe intestinal and generative organ troubles and had one of the feeblest and most erratic hearts I ever noted. She suffered excruciating headaches and facial neuralgia. I was called immediately upon my return from a short vacation and found that several hours previously, terrific pain had developed in the abdomen. Upon examination, I made a diagnosis of intestinal intussusception and immediately explained the gravity of the condition and advised calling in consultation a surgeon and finding out first hand what the chances of a successful operation were as regards the life of the patient. This was done. The family selected a doctor who had before been their physician and was a surgeon of good reputation. His examination and diagnosis confirmed mine, but his prognosis was even more hopeless than mine and the family decided to leave the case in my hands. In such a condition, the result is death or improvement with an extreme limit of forty-eight hours, so we had not long to wait. I used every method I knew at that time to secure SUFFICIENT RELAXATION TO DELIVER AN EFFECTIVE CHIROPRACTIC ADJUSTMENT, the surgeon administered hypodermics, everyone, including the patient, did all in his power to secure some favorable change, but without result.

"I hesitate to set down in cold type what followed, but it is so important a matter that in spite of arousing a degree of unbelief that may discount the important facts in this book, it is necessary because it is true. The patient died while I was at the bedside. The surgeon and the sister of the patient

agreed that all was over. I then immediately took the patient out of bed, more as a last straw than with any hope, stretched the now limp form in position with the help of the surgeon AND GAVE AN ADJUSTMENT which was so severe that I had wanted to give previously but could not bring myself to it while she still lived, and I had the satisfaction of knowing I had accomplished what had before been impossible. We placed the patient in bed and watched life return. A very fair degree of recovery, with no more distresses and difficulties than had previously been experienced, was made. Thirteen years later (1931) I had the pleasure of meeting this patient again and find that she is now rosy and plump, though just a few months previous she had buried her sister after nursing her for over a year. There is no reason to doubt that she will spend many more pleasant years.'"
Pages 128-129.

"As early as 1915, certain startling recoveries occurred as a result of Chiropractic adjustments in Dr. Hurley's office. The first was a case of Pulmonary Tuberculosis. This young man was taken out of a state sanitarium after months of unsuccessful treatment there, by his father when he was notified that the son could not live through the night. Some one persuaded the father to have Dr. Hurley look the case over and when he saw the patient, he was of the same opinion as the sanitarium authorities. However, thinking the patient might be made somewhat easier and, after explaining the possibility of immediate death under an attempted adjustment due to the fact that hemorrhage began upon the slightest movement, and everyone being agreeable, Dr. Hurley proceeded. He had an immediate 'hunch' that something of vast benefit had occurred AFTER THE ADJUSTMENT, as the result was so instant, continuous, and beneficial.

"A complete recovery was had in the course of the next year and all during that time, although this patient was under constant observation, he never was adjusted again. The plain fact was that Dr. Hurley feared to make another, thinking it might spoil what was evidently so good. He takes no credit for this recovery, FRANKLY CONFESSING THAT TO THIS DAY, HE IS IGNORANT OF JUST EXACTLY WHAT HE DID THAT NIGHT THAT PRODUCED SUCH REMARKABLE RESULTS, OR JUST HOW IT WAS DONE. He tried on numerous occasions to repeat and frequently with some degree of success, but never with the startling and instant change that was then secured. We know now what occurred, and how. This present work assures as complete a correction by reasoned and intelligent work as was then accidentally and radically obtained. ***** Other similar cases could be given, but the above are believed to be sufficient to establish the point to be made, which is that a tremendous potential exists in the human body; that when the principle which changes that potential healing force into available healing force is correctly understood and used, everyone who uses it thus will get well." Pages 171-173.

We are frank in saying we see no merit in the system as evidenced in our tests.

IS THERE AN EBB AND TIDE TO SUBLUXATION FREQUENCY?

It is interesting to study conditions of frequency of vertebral subluxations, proven by frequency and locations of interferences; when such most likely occur, and what reason seems apparent for them.

Vertebral subluxations can and do occur any time of year, whenever accidents, twists, wrenches, falls, strains, and violent muscular contractions occur where invasionary force exceeds resistance, where one overcomes its opposite. That has been the Chiropractic principle of causation of subluxations and evidence deduced proves more sound today than before.

During process of checking cases, we find that shortly after violent accidents, subluxations will recur and interference heat readings reappear at such times with compensatory frequency.

(Words are often inadequate to explain a NEW thot without referring to related thots. In this article we lay groundwork for permanent absence of permanent subluxations, under adjustment; and possible recurrence of subluxations which could be temporary or permanent, without adjustment. To elaborate this article, readers will note fundamental laid down in "What Is Behind the Hoboing, Roving, or Roaming of Vertebral Subluxation?" (Page 666.) Otherwise, this article, by itself, will seemingly be contradictory.)

A case has some chronic dis-ease some place. There exists a chronic subluxation. We read case with neurocalometer, neurocalograph and spinograph; find heat reading interference and vertebral misalignment which, with both avenues of information, proves existence of vertebral subluxation. Adjustment is given. Subluxation is gone and interferences checked out. We keep this case under observation for several months. Day after day, week after week, month after month, readings remain clear. On a certain date, reading is back, possibly higher than originally. Why? Upon inquiry we find case was running to catch a bus, slipped on sidewalk, etc. Recurrence of subluxation with interference was result of violent invasionary force which originally was absent. This accidental invasion can and does occur any time, in any case, while under observation. Time of year when this might occur is not vital, for accidents occur in any person, any time, in any way.

Two other conditions intervene and give rise to increased and marked return of same subluxation:

1. Transition period between summer and fall, or fall and winter; between winter and spring, or spring and summer.
2. Any time of year during a period when there occurs a SUDDEN and marked fall or rise in temperature.

In either of these varied periods, subluxations recur without history of violence or accident. GRADUAL changes of temperature, covering a period of days or weeks, do not affect apparent creation of new subluxations or recurrence of old subluxations which have been absent for a period; but SUDDEN changes do.

It is during and immediately following SUDDEN change, either way, that subluxations can recur or return, manifesting readings. Adjustment at this time will again check them out to where they may consistently remain out. Man is a chemical laboratory composed of eighty per cent fluidic values, acids and alkalies, with solids in solution passing thru. This chemical balance is a slow process. It is always going thru a daily transition and so long as climatic conditions are gradual, to which it can adapt, there will be no quick, sudden, or violent upsetting in chemical balance having a direct effect upon ability of musculature to adapt itself to resistance to external forces such as heat or cold.

This condition will not be observed unless one makes, keeps, analyzes, and tabulates case records carefully and accurately. Neither will it be seen by checking a case now and then. If Chiropractor has 100 cases which he is checking daily, keeps records upon them; and then if weather which has been warm for a spell turns cold over night, it will be enlightening to see how many adjustments he will give NEXT DAY on these 100 cases whom he has not been adjusting for weeks previous, assuming he is doing competent specific work. One explanation is that one portion of average anatomy which is exposed, day and night, waking, walking, or sleeping, is the neck. It is here cold contracts neck muscles and makes possible external accidental concussion of forces which brings back major. It is interesting as an observation and worthy of checking in practice.

If there is a sudden drop in temperature, man's fluids and musculature cannot adapt themselves as quickly as change in temperature, and a subluxation with interference is manifest because of marked heat or cold contracted condition. On reverse, if there be a sudden rise in temperature, man's fluids and musculature

ture cannot adapt themselves as quickly as change in temperature, and subluxation with interference is manifest because of a marked prolapse (relaxation) of musculature condition.

For years, we have been studying, observing, checking this development of subluxation-interference. We have known developments to show in as high as fifty per cent of cases, MAJOR subluxation ALWAYS being THE ONE to recur. New ones will NOT occur. We find that regular cases will show more interferences at seasonal transitional periods than at regular inter-seasonal periods; or they will show more frequently and increased interferences at sudden changes in temperature periods than at regular seasonal weather which spreads itself gradually over calendar.

Once individual gets "seasoned," be that season summer, fall, winter, or spring, he gets back to his regular graph reading, and subluxations and interferences occur only with periodicity, other things being equal, as usual result of unusual twists, strains, wrenches, or other violent invasionary forces which were original cause of primary subluxation.

CHIROPRACTORS GO BACK TO SCHOOL

Average student of Chiropractic chose his Chiropractic school carefully, then went there TO LEARN CHIROPRACTIC. When he graduated, he felt HE HAD LEARNED CHIROPRACTIC; he HAD all there was; he had all that ever would be.

He entered field of practice. He was satisfied. He got results. Chiropractic being a new science, incomplete as yet, kept on growing. He did not keep up with procession; slipped behind; army marched on without him. He grew careless with what he DID know; began to slip on important details of technique; developed an indifferent mental state on adjusting; began to lose that which he once had. Compared with NEW GROWTH coming in, his education was mossbacked. Results did not come now like they used to. To fill the void and avoid gap, he began groping in medical diagnoses and therapeutics; mixing thots and methods began to fill head and office. Patients were no longer getting well. His business dropped in quantity, quality, and income. Chiropractic, so far as HE was concerned, was on toboggan.

About the spring of '23, our profession hit the bottom of inefficiency. Smallest percentage were practicing Chiropractic, and greatest percentage were dabbling in medical methods. About 80 per cent were practicing 80 per cent of medicine. About 20 out of 100 remembered what Chiropractic was; there were not 10 per cent who could intelligently TALK Chiropractic; there was not 1 Chiropractor in 1,000 who could give an ADJUSTMENT. We had gravitated into back-bone shovers, vertebrae crackers, pushers of bones. Average Chiropractic patient read more Chiropractic literature than did average Chiropractor; could talk and understand more Chiropractic than could average Chiropractor. It was a pretty mess our profession had dragged itself down to. We frequently said we would rather address a gathering of Chiropractic PATIENTS than a convention of CHIROPRACTORS, for patients understood our thots, language, and intent.

It was about this time we made that open declaration at Philadelphia that "Chiropractic as a human service is doomed." Truth, once discovered and developed, written and printed, can never be erased. It can be blotted out, so far as human beings delivering it to the sick is concerned. The profession of Chiropractors were killing "chiropractic" so far as they were not any longer delivering CHIROPRACTIC to the sick. This statement aroused the profession into resentment and startled them into seeking a denial of the statement, only to find it was appallingly so.

Chiropractic, in common with other scientific movements, had a way of refusing to stand still AT THE CHIROPRACTIC FOUNTAIN HEAD. At the Chiropractic Fountain Head, Chiropractic was on the decided up-hill growing climb. It was going thru rapid evolution of changing from theory to science; from guessing to knowing; from backbone shoving to "the adjustment with that extra something with staying-put value"; from believing we knew where interferences were, to proving it. It took approximately ten years for this to develop to where it was sufficient unto itself to be taught as a definite system.

About this time, B.J. took it upon himself to believe time had arrived to begin a definite movement of dragging the profession out of its cesspool, believing average Chiropractor was ready to step up and out. One-week review courses, here and there, came into being. In rapid succession came Santa Barbara, London

(England), Pre-Lyceum, Seattle, Los Angeles, San Antonio; New-ark, etc. Hundreds took advantage of possibilities. Thousands of cases passed in review in new work.

Accomplishments of the Specific began to spread. One by one, Chiropractors realized a genuine evolution of education and application **WAS POSITIVELY HERE FOR THEIR GETTING**. As they grew to understand, they assumed the attitude of crusaders to others. Letters began to pass back and forth between indolents who had awakened and indolents who were asleep but willing to be awakened. One by one, numbers grew. One by one, they **DESIRED** education.

Today (1933) there is a decided **GOING BACK TO SCHOOL** movement. Hundreds read every new article, secure new books, attend classes to gain new instruction, labor long to deliver the new adjustment. **A NEW DAY IS AT HAND AND A NEW PROFESSION IS BEING BORN WITHIN THE OLD PROFESSION**. The old notion that all that could be learned *was* learned, is dead. That there **IS** a **NEW** Chiropractic principle, practice, and application ready for getting has taken hold of thousands.

In a few years you won't know our people. They will be reborn, rebuilt, remade into **NEW** beings. They will accomplish greater things than before.

CHIROPRACTORS ARE NOW BEGINNING TO GO BACK TO SCHOOL. That's as it should be.

AN INCONSISTENT OBJECTION

Some contend that pain, symptoms — both subjective and objective — as well as pathology, are in themselves evidence of subluxation and call for correction of causative subluxation.

Adjustment should be given only **IF, WHERE, and WHEN** a subluxation exists, producing pressure upon nerves, interfering with transmission "regardless of all other evidence of illness," for **THAT IS EXACTLY WHAT CHIROPRACTIC IS**. That is **NOT** what medicine is. Symptoms are evidence of a cause of having **HAD** a **SUBLUXATION** as a "causative" factor. Every symptom is proof that a subluxation **DID** exist. No symptom is proof that a subluxation **DOES** exist. Symptoms can exist with-

out a *now* existing subluxation. Symptoms cannot exist without once having had a "causative" subluxation to produce them.

To state when symptoms exist a subluxation exists; that "symptoms — both subjective and objective — as well as pathology ARE IN THEMSELVES EVIDENCES OF SUBLUXATION," is to assume the case never can or will get well, because they go together — subluxation not receding before effects.

No person can get well until subluxation is adjusted, for symptoms cannot disappear as long as subluxation exists.

Primary existence of a subluxation caused secondary symptoms.

Subluxation came FIRST, followed secondarily by symptoms.

Case cannot get well until primary subluxation disappears before secondary symptoms.

If it is sound "symptoms — both subjective and objective — as well as pathology, ARE IN THEMSELVES EVIDENCE OF SUBLUXATION," then as subluxation changes, symptoms must change; as symptoms change, subluxation must change, would be equally sound. In ratio as subluxation reduces, symptoms reduce; faster subluxation fades, quicker symptoms fade. If subluxation is worse, symptoms become worse; if subluxation stands, symptoms stand.

A subluxation can be adjusted and no longer exist, but symptoms and pathology can and will exist UNTIL INNATE RE-BUILDS THEM TO NORMAL. Contention that as long as man is sick he has a subluxation, is to keep him sick because he has a subluxation which produced sickness.

This is open, candid, frank admission that CHIROPRACTORS DO ADJUST A SUBLUXATION OUT OF THE PICTURE AHEAD OF DISAPPEARANCE OF SYMPTOMS.

Today we KNOW that a subluxation, being such IN FACT, can be adjusted ONCE, remain gone for weeks or months while case is getting well. It has been done in thousands of cases. To deny this, by affirming contrary, is to admit you cannot find major subluxation; cannot adjust it; must keep on hammering away on wrong places, wrong times, often creating what you are paid to eliminate.

It is one thing to THINK you adjust a subluxation and THINK such "adjustment" got case well; quite another to KNOW what

you did, at place you did it, was NOT an adjustment because it wasn't on A SUBLUXATION; and still another to KNOW some otherwise unsuspected place WAS THE ONE that DID get him well.

Example: Case comes with well-defined medical symptoms, "subjective and objective and pathology" of "brain tumor, nephritis, gout, or any other disease," for which Chiropractors would "adjust" merically at least four different places. Suppose you adjusted ONLY axis ONCE and case GOT WELL of *all* troubles — that would be an unsuspected place.

To "adjust" any vertebra not in fact a subluxation would be equal in value to treating any kind of organic symptom, "subjective and objective as well as pathology," even if located in spinal column. As well "adjust" a prolapsed gut, a misaligned vertebral joint, neither of which is producing pressure upon nerves or interfering with transmission of functional flow between brain and body, upon which other organs depend, as to push a backbone joint that was not doing either, irrespective of what "move" or "moves" were used to push it. Merit of rapid recovery, number of diseases recovered from, simultaneous number recovering from one adjustment, lies partially in KIND OF ADJUSTMENT GIVEN; largely in knowing where, when, how subluxation exists. No Chiropractor can understand full import of value of this statement except as he contrasts results of former methods with results of the Specific. Many Chiropractors THINK they know, SAY they know, write about *how* they know, and their practice, instruction, and action deny such. They, in common with others, hold theory that THE LOCATING FACTOR is of minor importance. They practice the "belief" that what IS important is: (a) how many places they treat; (b) what move they treat them with; (c) how often they treat them; (d) in as many places as possible.

Opposite of this is what makes CHIROPRACTIC a philosophy, science, and art of specific, definite, efficient, exacting merit. Not how many places, but how few. Not what move or moves, but adjust only subluxation. Not how often, but how seldom.

INCOMPETENCY STRIKES A LOW LEVEL

The Spears System (which attempts to "adjust" twenty-four vertebrae) is a public acknowledgment that none know *which* one was subluxated. If they KNEW they would adjust IT and no other. "Adjusting" *all* is an acknowledgment of not knowing whether one, many, or all are subluxated.

Many endorse and teach meric system and decry that we don't hold fast to it; yet deny it constantly and regularly by endorsing, peddling, teaching, and using Spears system.

Somewhere between principle of Chiropractic (that ONE vertebra subluxated causes dis-ease) and Spears system (which cracks 'em all), is a contradiction in principle and an acknowledgment in practice that many find themselves incompetent as Chiropractors interpreting Chiropractic.

Not having means of knowing *how* to find THE subluxation, they are compelled to fall back on shot-gun methods, medical theories of diagnosis.

That's what surprises them, as it surprised us when we found the Specific to be true. That has convinced several thousand wide-awake progressive Chiropractors to the realization that the Specific is more than we contend.

If they "adjust" once each day, it has one-thirtieth the staying-put value against one adjustment once in thirty days.

If they "adjust" one place only, every fifteen minutes, it has one-ninety-sixth the staying-put value as against "adjusting" it once every twenty-four hours.

If they "adjust" twenty-four vertebrae every hour of day, error of judgment increases to 1/576th of being correct.

If they "adjust" twenty-four vertebrae every fifteen minutes, thirty days in the month, refraction has multiplied to 1/17,280th of being correct IF CHIROPRACTIC PRINCIPLE BE "SANITY IN CHIROPRACTIC," which "IS MOST VITAL NEED OF OUR PROFESSION."

By inverse ratio, opposite would be true.

If THE subluxation is efficiently, correctly, competently located, is ADJUSTED ONCE and remains adjusted for thirty days, not needing further "treatment" upon itself any other place at any

other time, then he has reversed above destructive values by turning on continuous flow of mental impulse supply into a constructive restoration of health that much faster:

1/30th faster than he who adjusts one place EVERY DAY for 30 days.

1/24th more accurate than if he "adjusted" 24 every day.

1/96th faster than he who "adjusted" one place every 15 minutes of the day.

1/576th faster than if he "adjusted" 24 of them every hour of the day.

1/17,280th faster than if he adjusted 24 of them every 15 minutes of the day for 30 days.

Difference between accumulative DESTRUCTIVE survival value and accumulative CONSTRUCTIVE survival value is brought about by KNOWLEDGE that efficient, competent, accurate, and honest use of NCM with its Specific system gives.

If we "adjust" one vertebral subluxation twice, and case gets well, first time WAS A FAILURE.

If we "adjust" one vertebral subluxation 24 times, 23 times we fail.

If we "adjust" 24 vertebrae once every 30 days, then we admit every day, 24 times, by repeating our failure, that we did not give AN ADJUSTMENT.

If we "adjust" 24 vertebrae every 15 minutes of 24 hours, then 95 times, BY REPETITION, we admit we do not know where or when to give an adjustment.

We are rapidly evolving out of the many-place backbone treatment method, passing thru the multiple location adjusting idea, into a one-place, once specific adjustment. Chiropractic is getting purer and growing stronger yearly. Chiropractors are splitting into two groups: those who are getting worse, as all-backbone-adjusting-masseurs, relieving or alleviating symptoms, and those who are learning HOW to give ONE adjustment ONCE and get their case WELL.

"ANTERIOR CONSISTENCY" VS. "POSTERIOR INCONSISTENCY"

If we were a Chiropractor we would be most thoroly equipped with every possible EXTERNAL Chiropractic aid to gain every possible INTERNAL Chiropractic information to prove every bit of information needed to make us a Chiropractor.

If we were a medical physician, we would have an avid ambition to have, to know how to use, and to gain every medical information possible on INTERIOR of ANTERIOR of man to medically diagnose his internal diseases; but we would have NO desire to have, to know how to use, or to gain anything Chiropractically about what was possible on INTERIOR of EXTERNAL of spinal column in relation to vertebral subluxations to adjust them.

If we were a CHIROPRACTOR, we would have an avid ambition to have, to know how to use, and to gain every CHIROPRACTIC information possible on INTERIOR of EXTERNAL of spinal column in relation to vertebral subluxations to adjust them, but we would have NO desire to have, to know how to use, or to gain medical information on INTERIOR of ANTERIOR of man to medically diagnose internal diseases. We would not desire to know everything diagnostic about diseases on INTERIOR of ANTERIOR, deny everything analytic about vertebral subluxations on INTERIOR of POSTERIOR, and try to use former on latter, claiming such possible.

A medical physician should know that every physician who uses diagnostic instruments is efficient, accurate, competent, and honest in their use, especially in referring business. A Chiropractor should know that every Chiropractor who uses vertebral subluxation analytical means is efficient, accurate, competent, and honest in their use, in referring business. Unquestionably, there ARE inefficient, inaccurate, incompetent and dishonest men in medicine, same as in Chiropractic.

As medical instruments require a medically-trained mind to medically-interpret findings of medicine, so do Chiropractic instruments require a Chiropractically trained mind to Chiropractically interpret the findings of Chiropractic. As medical instruments are of no value to an efficient, accurate, competent, and honest Chiropractor, CHIROPRACTICALLY TRAINED, so are the Chiropractic instruments of no value to an efficient, accurate,

competent, and honest physician, medically trained. Can this be one of the reasons why some are NOT interested in NCM and fight its use? Why should they be thot-shy and practice-shy of adoption of ONE MORE "diagnostic" instrument? If eight are good, nine should be better. Science has acknowledged the ninth; why must some fight shy? That the thermopile reads symptomatic and pathological normal and abnormal body heat is not in dispute. It is in use constantly and has been for years, by Mayo, Crile, Harvard and other MEDICAL clinics. Why should some deny it as another spinal vertebral subluxation workable principle, to prove the "sanity and clear thinking" of Chiropractic? One more or less "diagnostic" instrument should not worry them. They believe in the rest, why not this? It would seem, being CHIROPRACTORS, they would want to know, to use, and to teach EVERY KNOWN CHIROPRACTIC INSTRUMENT AVAILABLE which would help make themselves and students BETTER CHIROPRACTORS. Peculiarly, they DENY a Chiropractic instrument and fight to inculcate MEDICAL instruments into the heads, hearts, and hands of CHIROPRACTORS! Isn't there something deeper, in this "controversy," than what appears on the surface?

"CHIROPRACTIC ADVANCEMENT

"Which is the more stable in its results, hap-hazard advancement or scientific advancement? It is common knowledge that many of the great discoveries of the world have been the result of what really constituted a piece of luck—this piece of luck has in many instances disclosed to the scientist the principles of a new science. For that science to develop, it is essential that as far as is possible the luck element has to be taken out of it. In other words, it has to be brought to the scientific basis where it can be uniformly dissected and built up again. Chiropractic was one of the great fortuitous discoveries of the past generation, and it has developed to its present prestige through the use of more or less scientific methods. It would appear that at the moment through the painstaking work of various members of our profession, we are on the eve of still further scientific developments—at the moment, and as has always been the case, the human equation enters largely into the application of Chiropractic; a person might know his anatomy and physiology and such like subjects off backwards, and yet if he was not able to give a correct Chiropractic adjustment, under no stress of circumstances could he call himself a Chiropractor."

Above states a fundamental truth. Born of accident, living by luck, its growth must come thru science. No matter how much any person could know of medical works taught, IF HE COULDN'T GIVE AN ADJUSTMENT "under no stress of circumstances could he call himself a CHIROPRACTOR." And, by reverse language, it works backwards. If one who calls himself Chiropractor COULD NOT GIVE AN ADJUSTMENT, he couldn't get sick well. If he couldn't get sick well WITH ADJUSTMENT, then he sought the solution to failure in medical books. It follows as night the day — medical diagnosis, medical diet, medical treatments, medical methods, AS SUBSTITUTE FOR FAILURE. In themselves, they are failures. Failures added to failures piled up the inability OF CHIROPRACTIC TO BE CHIROPRACTIC. Under such a regime, "Chiropractic" soon becomes that which it isn't because of application of A NAME to that which it isn't. The PSC has applied itself to improvements along Chiropractic lines. It has developed "that adjustment with that extra something, with staying put value." Worse cases get well faster and better now, with Chiropractic, than ever before. Scientific growth is coming.

ADJUSTING TABLE IS ESSENTIAL IN STAYING-PUT ADJUSTMENTS

Each of the following essentials is VITALLY necessary to build that adjustment with that extra something with staying-put value:

1. Neurocalometer — to determine LOCATION of interference.
2. Spinograph—to ascertain POSITION of vertebra at location of interference.
3. Toggle-recoil-Innate adjustment.
4. Kind of adjusting table to accomplish objective.

We now outline last requirement. You can't change any element, by addition or subtraction; quantities, by plus or minus; qualities, either essence or dilution; or vary sequence and make law work AS A LAW, equally applicable to all cases alike.

Average Chiropractor permits patient to tell him what kind of

adjusting table he wants to take "adjustment" on. He wants something soft, fluffy, easy, comfortable, that doesn't hurt. To that end, we have big, heavily padded Griffin table which reminds one of a feather bed. Then there are air-filled, rubber, inflated pads that lie on top of ordinary heavily-padded table. Between all of this, we have many kinds of belly supports which hang between front and head sections of a divided table. Some are mere slits or strips of leather; some are on hard and stiff springs and are supposed to give up and down to fit shapes of abdomens which protrude into them. None can make possible an adjustment "with that extra something with staying put value."

After extensive clinical-laboratorial scientific research, we came to unalterable conclusion that in side posture, solidly padded, can best results be attained. We use *only* that kind of table now. We would not use any other. A toggle recoil INNATE adjustment cannot be best secured any other way.

If you try to be a Specific worker, all else may be perfect. If you try to give an "adjustment" on wrong tables described, your work will fail for want of proof.

ALL elements must be there. Side posture table is essential. We know Chiropractors who are trying to practice Specific and contend everything they do is in strict accord with Specific work, yet they don't get staying-put value. Upon inquiry, we find they try to give an adjustment on a feather bed. This spoils every essential element in the toggle recoil Innate adjustment. Side posture HARD surface MAKES IT MOST POSSIBLE. Patients do not know this; neither can they be expected to know it. You, who know, must determine table as well as Neurocalometer, spinograph, or other essential to getting case well.

CAN ONE "MAKE" HEALTH; OR MUST IT "GROW"?

THE PROGRESSIVE (October, 1932 — 19 years ago) official organ of British Chiropractors Association, contains following:

"One of most revolutionary ideas that has been introduced into Science of Chiropractic in the last few years is a system rightly or wrongly named the 'Hole in One.' This system, since its inception some two years ago, has been the cause of much argument and writing. Even before the Hole in One system was introduced to Chiropractors in the field, we heard a lot about

nerve pressures — this also caused much discussion in our ranks; the principle was openly flouted by many, proving that at least it had virtue, otherwise it would have been rapidly discarded by all. It is possible that the 'Hole in One' system is the natural sequence to the early findings of the little heat reading instrument called the Neurocalometer, and definitely without the Neurocalometer it would be impossible to put into practice the latest teachings which are embodied in the 'Hole in One' technique. Chiropractors who argue against the 'Hole in One' system have as their biggest objection the fact that 'patients are not interested in the particular condition existing in some one part of their spine — they are interested chiefly in getting well; they come to me to be MADE well — that is what they pay their money for.'

"It would appear that the greatest weakness of the various systems that have had their being previous to the 'Hole in One' technique being brought out, such as the Meric and the T & F, to name three of the more outstanding, had been that there has been a definite attempt made by the Chiropractor to 'MAKE' his patient well. HE HAS ATTEMPTED TO USURP THE POWERS OF THE MASTER MIND OF THE UNIVERSE — we now know that all this is wrong, IF BY THE INTELLIGENT USE OF THE NCM AND SPINOGRAPH IT IS POSSIBLE TO LOCATE THE ACTUAL SEAT OF MENTAL IMPULSE INTERFERENCE, AND THEN BY SCIENTIFIC ADJUSTMENT TO RELIEVE THIS INTERFERENCE, IT HAS BEEN MOST EMPHATICALLY AND DEFINITELY PROVED THAT THE PATIENT WILL 'GROW' BETTER. NO QUESTION OF MAKING HIM BETTER, THAT IS ONE OF THE MOST WONDERFUL THINGS OF THE NEW WORK.

"The Chiropractor who listens to his patients' troubles before satisfying his own mind upon the actual physical condition existing IN THE AREA WHERE NERVE PRESSURE TAKES PLACE, RUNS THE RISK OF BEING DEFINITELY PREJUDICED IN HIS WORK — HE WILL BE TEMPTED TO TRY TO MAKE HIS PATIENT BETTER. The NCM, if it does nothing else, definitely proves the evil existing in that one too many adjustment. NCM users have found to their cost that it does not pay, nor is it good policy to think THEY KNOW BETTER THAN THE INSTRUMENT THEY USE. The NCM has changed the Science of Chiropractic from a hit-and-miss back-punching practice to a true science — a science that will develop as the Chiropractors in the field develop into the most stable health-giving treatment in the world."

We object to "treatment" in last sentence. We agree, on the whole, with opinions expressed.

The one idea brot forth worthy of reflection, matured judgment, and understanding is: all so-called health methods have tried to force health into a sick body; health was in the foreign body and, once it arrived within sick body, sickness would be

driven out and health driven in; that it was a possibility within the realm of foreign or outside methods to **MAKE** sick person well, etc. Specific idea proves that dis-ease grows when there is interference to mental impulse supply; that health will **RE-GROW** when mental impulse supply is restored. Time of growth, either sick or well, oftentimes is essential ingredient to realize and allow for.

After all, understanding what Specific means and brings forth in new concepts is a greater understanding of exactly what happens and how, under new construction we now present.

IN THE FAMILY

An ordinary observation convinces most of our professional family that families of Chiropractors, and their relatives who have ready access to Chiropractic service, are as sick as are usual run of cases who come to Chiropractors to get well.

Obviously, Chiropractic being what it is, being of great service to sick **OUTSIDE** of relatives and families of Chiropractors, a Chiropractor's family and relatives should be well. But they seldom are. Why? Because Chiropractor no more knows how, when, and where to adjust **TO GET HIS FAMILY AND RELATIVES WELL** than he does to render a service to strangers who employ him. If he knew **HOW, WHEN, and WHERE** to get strangers well, he'd know **HOW, WHEN, and WHERE** to get his own well. If he has failed on his own, then naturally he could do no more on others.

One of the objectives we started out to accomplish in those week stand courses, such as Santa Barbara, London, Lyceum, Los Angeles, Seattle, San Antonio, etc., was to apply the Specific in our Chiropractic family; adjust them according to new technique; prove it is possible to get **THEM** well of troubles they have never gotten rid of. If Specific is what we claim, it is our duty to adjust our own and prove on them it will work.

One of most convincing arguments, to convince a stubborn and prejudiced Chiropractor of greater efficiency, competency, and honesty of Specific method, over and above all others, is to prove it did work in him; adjust him with it alone and **GET HIM**

WELL of conditions he has been having adjusted for years, with many other methods, without results.

In every one-week Review Course we gave, we insisted that ALL attending Chiropractors be spinographed, read, and checked daily, and adjusted when necessary. By so doing, many stubborn conditions have been made well.

We need adjustments in our Chiropractic family as much as, if not more than, we need to render service to others. Out of the restoration of health to ourselves comes that INNER CONVICTION THAT KNOWS EXACTLY WHAT IT KNOWS.

GROWTH COMES PAINFULLY

There was a time when we did not have knowledge or ability to know how to locate a vertebral subluxation by and with a complete and independent CHIROPRACTIC means, method, or mode. There was a time when we were compelled to secure medical symptoms, objective and subjective, as well as pathology, lead them back to the organ; the organ to and thru its meric system nerves to where they entered meric spine and then and there call off our meric system and say SP-KP was place to adjust. There was a time when we were a limited medico-chiro symptomatic backboner subluxation-seeker. Today we go DIRECT to backbone, FIND subluxation, ADJUST it, get case WELL without foolishly looking belly-wise on ANY case.

Medicine is WRONG in principle and a failure in practice. Were this not so, medicine would get sick well and there would be no necessity for Chiropractic. That not being so, Chiropractic gets sick well and there is NO NECESSITY for medicine. For Chiropractors to affirm medical principles is to deny Chiropractic practice. For The PSC to affirm Chiropractic principles is to deny medical practice. Mixer cannot affirm medicine in principle and affirm Chiropractic in practice, any more than The PSC can affirm Chiropractic in principle and affirm medicine in practice. Therefore, The PSC affirms Chiropractic principle and practice and denies medical principle and practice.

OBJECTIVES IN SPECIFICS

There is a marked difference between a specific for the CURE of ONE disease and a specific for the CAUSE of ALL dis-ease.

There is a marked difference in value between medical avenue of approach to solution of sickness problem and Chiropractic approach to same.

For 5,000 years, medical men have been trying to find A SPECIFIC for the CURE of disease. They have finally reached that point where they THINK germ is specific cause, and serum specific cure of disease.

Tendency of medicine is to build chemical specific for antidote of disease. This is done on theory of building an anti body to overcome chemical unbalance in body, with hope of establishing neutral chemical condition.

So far as objective sought, upon condition ascertained, it does just that. A certain poison exists. Chemical constituents are chemically well known. Opposite would be a neutralizer. To neutralize chemical poison is to produce a specific. But a second poison to overcome first poison merely makes a third poison in body.

Many chemical laboratories are today making many chemical "specifics," as vaccine for smallpox, etc. Approximately 128 species exist for as many diseases. Many diseases still exist for which there is no known specific.

Disease, under that system, is a multiple thing; specifics are multiple.

How different is the Chiropractic approach. Dis-ease is a single condition; a lack of function; a lack of motion; for LIFE IS MOTION, DEATH IS NO MOTION, DIS-EASE IS A CONDITION SOMEWHERE IN BETWEEN LIFE AND DEATH. Lack of motion is caused by lack of normal quantity of energy to move tissue structure. This makes dis-ease a SINGLE condition, regardless of characteristics, quantities, or qualities that to be observed, catalogued, listed, and systematized into respective categories in endless forms.

To find CAUSE of that which diminishes LIFE and thus increases DEATH is simple. To locate that cause is to find A SPECIFIC FOR THE CAUSE OF ALL DIS-EASE (dis-ease).

Chiropractic has found a specific for THE CAUSE of dis-ease. We have found THE VERTEBRAL SUBLUXATION which is the SPECIFIC CAUSE for ALL dis-ease. We are not interested in cure for *any* disease. We are interested in ADJUSTMENT OF SUBLUXATION — CAUSE. When cause is corrected, all dis-ease will disappear because of corrective healing forces within body.

To find a specific for cure of disease is to treat effects. To find a specific for adjustment of cause of dis-ease is to be distantly removed from effect.

The Specific is first and only system developed which establishes a definite, precise, and exacting method of locating and adjusting CAUSE of ALL dis-ease.

There is a marked difference between chemical "specific" for cure of many diseases, and a SPECIFIC for CAUSE of ALL dis-ease.

IT ISN'T NUMBER OF PUNCHES — IT IS TRANSMISSION

Room is dark. We need light. It isn't number of punches, shoves, clicks we give button that counts. It is restoration of transmission of electricity!

Suppose we adjust button ONCE, at ONE place, and ELEC-TRICITY IS RESTORED. We HAVE LIGHT. What more is desired, needed, or could be demanded?

Suppose we did push that button 60 times and 10 other buttons 40 times, could we do more?

When we know *which* button, where, and how, and ADJUST RIGHT BUTTON ONCE, and electricity is restored, we have light. How do we know? Because we look and see; thus know we did right thing, at right place, at right time, in right way.

Knowing we have light, we know better than to punch one button forty times, or punch forty other buttons once each.

An organ is sick. We need life. It isn't number of punches, shoves, clicks we give vertebra that counts. It is restoration of transmission of mental impulse current that counts.

Suppose we adjust vertebra ONCE, at ONE place, and MENTAL IMPULSE SUPPLY IS RESTORED. We HAVE LIFE. What more is desired, needed, or could be demanded?

Suppose we did push that button 60 times and 10 other buttons 40 times, could we do more?

When we know which vertebra, where and how, and ADJUST RIGHT VERTEBRA ONCE, and mental impulse supply is restored, we have life. How do we know? Because we have a neurocalometer which permits us to check and see; thus know we did right thing, at right place, at right time, in right way.

Knowing we have life, we know better than to punch one button 40 times or punch 40 other buttons.

Many still live in that age where they believe many places must be frequently punched to adjust a subluxation. Some live in present age where we KNOW one place, done once, at right time, in right way is enough TO RESTORE TRANSMISSION.

It isn't the number of punches that's important, IT IS THE LACK OF TRANSMISSION AND ITS RESTORATION.

WHAT IS BEHIND THE HOBOING, ROVING, OR ROAMING OF VERTEBRAL SUBLUXATIONS?

Why do vertebral subluxations waver and vary as to possible abnormal positions, fluctuating in different possible positions, changing different degrees of occlusions, pressures, and interferences?

Why does a known vertebral subluxation, found by interference, positioned by spinograph, adjusted, (after which case gets well proving it to be such), waver and vary its readings from day to day; sometimes present, sometimes absent, always more or less present, acting as cause?

A vertebral subluxation with its consequent occlusion, pressure, and interference, is incipiently direct result of concussion of forces, wherein EXTERNAL invasive force is greater than INTERNAL resistive force; where EXTERNAL overcomes INTERNAL; where centripetal force conquers centrifugal. BEGINNING, from normal to abnormal, from a vertebra in situ to a vertebra that has lost its apposition, is EXTERNAL.

A vertebral misalignment is a symptomatic condition brot about by an INTERNAL abnormal demand force overcoming INTERNAL supply force, two being unequal. Vertebral misalignment is a lesser degree than a vertebral subluxation with no damaging sequences such as occlusion, pressure, or interference.

That a cause can change other normal effects to abnormal effects is equally obvious. That a vertebral subluxation, as a primary cause, can change normally contracting and relaxing muscles to contracted or prolapsed ones, is obvious.

That every abnormal effect has an original incipient or primary cause is obvious. A vertebral subluxation can CAUSE a dis-ease. Symptoms can change (but not CAUSE) other symptoms. Vertebral subluxation can CAUSE a fever in stomach. Hot stomach can change it from fluidic to dry. Hot, dry stomach can create "heart-burn" with chain of other symptoms.

If there is no vertebral subluxation, muscles will resist invasion of any external force up to maximum of NORMAL resistance within range of human body. All external invasive forces are resisted by contractions of muscles which either take up shock and absorb it by resistance, if normal, to save damage to soft or hard tissue structures, or external invasive force may be greater than NORMAL internal resistive force and overcome it, and damage can occur to position of some osseous structure. In event external overcomes internal, either because external invasive force is too great to be absorbed and accommodated by normal internal resistive force, or because internal resistive force is abnormally and pathologically reduced to a below-par quantity, because of a previously existing vertebral subluxation, it can and does effect soft structure in continuity, or hard structure in position.

All external invasive forces not normally absorbed and accommodated, attacking a normal resisting body, do one of four things to bones: fracture, dislocate, subluxate, or misalign them, intensity and damage as listed. External invasive forces could subsequently, as secondary issues, destroy continuity of soft structures, such as prolapses, etc. External invasive forces which are not normally absorbed and accommodated, attacking abnormal resisting body, could destroy continuity of soft structures such as cuts, abrasions, bruises, percussions, etc., with which we are not concerned as Chiropractors.

If effects indicate or prove cause, then there are four relative and comparative degrees or quantities of violence of concussion of forces:

1. great enough to produce fracture.
2. a lesser degree or quantity to produce dislocation.
3. even less than that, sufficient to produce a vertebral subluxation.
4. still less, sufficient to produce a misalignment.

Blow or shock which produces a fracture COULD produce not only itself but any broken continuity of osseous matter less than itself, providing various degrees spent themselves in lesser quantities in different places.

Example: If resistance were 100 per cent and invasionary force were 200 per cent, and if 200 per cent were maximum invasionary force, and 100 per cent were normal resistive force, then a fracture could exist. Carrying out same illustration — 175 per cent could produce a dislocation; 150 per cent, a subluxation; 125 per cent, a misalignment. If the 200 per cent were spent at ONLY ONE place, ONLY a fracture would result. If, however, the 200 per cent could be spent at four places, then the 200 per cent would produce a fracture of a femur; 175 per cent could produce a dislocation of head of femur; 150 per cent could produce a superior cervical vertebral subluxation; 125 per cent could produce one or more misalignments of vertebrae inferior.

At one and same time, as result of one and same "accident", an individual might come out with a fracture, dislocation — both of which would be objective, felt, seen, known, and both would be "set" by a surgeon. Also there COULD exist a cervical vertebral subluxation as well as dorsal or lumbar misalignment — none of which would be objective, felt, seen, or known to a surgeon; would escape detection; be unknown so far as patient or physician is concerned, out of which disease would begin to grow and at some future time create great and serious issues inimical to life of case. Chiropractor, immediately after an accident, now has those means at his command to prove existence or non-existence of vertebral subluxation or misalignment, as readily as does a surgeon prove existence of fracture or dislocation. This opens a new field of observation directly following existence of

accident which is as important, if not more so, than examination for fractures and dislocations.

Converse of above would not be true. 125 per cent invasionary force, sufficient to create a misalignment (and misalignments CAN be caused by external invading forces as well as internal muscular contractures, prolapses as well as normal contractions in opposite sides to contractures or prolapses) could not, because of its insufficiency in degree or quantity, produce a subluxation, dislocation, or fracture. Degree or quantity of blow or shock is a given quantity and cannot magnify itself once it has made an invasion into body. Contact between two antipodal forces is a determined quantity and will create that result which comes within its purview, not more than itself, but can't create lesser than itself.

Invasionary force is always relative and comparative to its resistance. If resistance, instead of being 100 per cent, is but 50 per cent, then 150 per cent of invasion could produce a fracture, for invasionary force is within itself maximum amount to produce such.

Example: Suppose a certain person, on January 1st, is 100 per cent resistant and a 150 per cent invasion occurs — a subluxation results. This may produce tuberculosis of lungs which, given 6 months, lowers general body resistance as result of ravages of disease. On July 1st, with bodily resistance down 50 per cent, a 150 per cent invasion could easily produce a fracture and might, in addition, produce a dislocation.

This analysis opens a new field of study to ascertain, understand, and to know general bodily resistances so essential to bodily health.

If muscles, whose function it is to receive, absorb, accommodate, and counteract themselves to shocks, cannot do these because of external being greater than normal internal, or because abnormal internal is below par, it travels to where it must be spent or dissipated in either breaking soft tissue or displacing bones in any one of degrees mentioned.

Let us picture a shock and follow it and see what happens:

A man falls. He hits the ground. Contact with ground is an external force invading body. Muscles, internally, contract within body. In this accident, external force invades. External

is greater than internal for one of two reasons stated. A vertebral subluxation, if concussion be less than a dislocation and more than a misalignment, is result. WE NOW HAVE PRIMARY FIRST GREAT CAUSE OF ALL THAT HAPPENS IN CONSEQUENCE AS WELL AS SEQUENCE. This subluxation occludes a foramen, produces pressures upon nerves, interferes with transmission of energy; ultimately leading to some muscle or sets of muscles somewhere distributed about, over, and in human frame; lowering or increasing of action being symptoms and pathologies of dis-ease. This lack of mental impulse supply energy lowers tone, introduces more or less permanent contracture or permanent relaxation (prolapse) and makes them less able to resist future invasions of even less strong invasionary forces.

This subluxation, as PRIMARY result of concussion of forces, CAUSES interference as PRIMARY result of subluxation, reduces muscular resistance contraction value on one lateral side of muscles of back, in various layers, either in one or a group of several back muscles, all of which move more or less or are attached to various vertebrae. This either makes one side strong or weak, by contracture, or prolapse; or, by comparison, creates an adaptative unnatural abnormal pull on opposite normal side.

Because of unnatural, abnormal lack of pull on abnormal side, or because of natural, normal presence of pull on normal side, by contrast, various vertebrae located at various inferior places to subluxation could be and are frequently affected as vertebral misalignments which are lesser misplacements than subluxations because muscular effects are less than subluxation cause from which they are abnormal effects. Vertebral subluxation in cervical cuts off flow to muscles; contracted or prolapsed muscles pull vertebrae below out of alignment; hence a vertebral misalignment below is an adaptative symptom of a vertebral subluxation above. It is as possible to have osseous mal-positioned symptoms of vertebrae, as result of vertebral subluxation, as it is to have prolapsed soft structure symptoms as result of same osseous vertebral subluxation.

To live is to act. To act is to move. We move only by muscular contraction and relaxation. Individual must live by moving, sleeping, getting energy to get tired and then to rest. He has many varied periods of activity, in many forms, equally as marked

as many and varied periods of inactivity in rest and sleep. Subluxations existing weaken muscles; weakened muscles are constantly called upon to withstand concussion of forces, shocks, as are normal strong muscles. They are constantly on an abnormal pull, strain, subject to various jerks and jars which ordinarily might be normally resisted, if normal; but under abnormal conditions find themselves unable to resist within normal range; hence vertebral subluxations as well as vertebral misalignments find themselves constantly subject to being shifted within varied respective ranges of their abnormal positions. Subluxation increases and decreases occlusions, pressures, and interferences — sometimes more, sometimes less. Misalignments increase and decrease positions **WITHOUT** occlusions, pressures, and interferences — sometimes more, sometimes less.

At no time will subluxation or misalignment be anything other than what it is, as to degree or character, position. It will always play within its abnormal range of being what it is. If a vertebra be **SUBLUXATED**, it will remain such until adjusted, either by accident or intention. Being a subluxation, it has a greater abnormal range of abnormality of position than has a misalignment; yet its range is less than a dislocation. A subluxation could, but rarely does, become a dislocation. A dislocation could not (ordinarily speaking) become a subluxation, for it does not step out of dislocation range and step down into subluxation range. Neither can subluxation range (ordinarily speaking) step down and into misalignment range. Neither will any of them (ordinarily speaking) reverse direction by increasing itself by stepping out of one range and up into other. Each field is distinct unto itself; each creates its own field of consequent and sequential effects noticeable in body. Effects of concussions of forces can be increased if concussion of forces is increased, thus increase its result, thus a misalignment could be changed to a subluxation; a subluxation to a dislocation; a dislocation to a fracture. But once an energy concussion of forces has spent itself in production of fracture, it would be unlikely to produce subluxation, etc., unless one concussion of force could and would split itself into production of a fracture violence at one bone and a lesser quantity produce a subluxation violence at another place. Each field is distinct unto itself; each creates its own field of a consequent and sequential effect noticeable in body.

If an atlas becomes **DISLOCATED**, it will take on a definite position and direction as a dislocation and rarely reduces itself, by itself, into a **SUBLUXATION**. Atlas **DISLOCATION** does not change that definite position and direction to some other, hour by hour, day by day, or month by month. It will remain a dislocation until corrected by accident or intention. It will always remain in that fixed range, moving about but never shifting its dislocation character. If an atlas becomes **SUBLUXATED**, it will take on a definite position and character — let us say **ALI** — and it will continue to be such as long as it exists as such. If adjusted, by accident or intention, every time it becomes subluxated in future, it will again be an **ALI** atlas. First atlas subluxation, and its subsequent reappearances, do not change that definite **ALI** direction and position to some other, such as **RPI**, at some other hour, day, or month. It will remain **ALI**, shifting about within its subluxated position. Same is known to be true of fractures, dislocations, or misalignments.

That which causes a vertebra to shift about within its range is abnormal internal contractibility of musculature of body, which always, **AS EFFECT**, does create a shifting value but never exerting sufficient external force to create a corrective misalignment, subluxation, dislocation, or fracture back to its normal situ. Only application and addition of an external invasive force, either accidental or intentional, caused it or can correct it.

To **TREAT** contracted muscles by heat, massage, or other means of relaxation, would be to treat an effect. To **TREAT** paralyzed or prolapsed muscles by exercise, whether it be manual or mechanical, to strengthen them, would be to treat an effect. If there were something that could relax a contracted muscle or something that could be made to contract a prolapsed muscle, it would be artificial and temporary, because of permanent existence of superior subluxation with its always-present occlusion, pressure, and interference **CAUSING** it.

To **TREAT** a vertebral misalignment would be to treat an effect of an effect; a secondary effect of a primary effect; and would but temporarily relieve an osseous symptom adaptatively created by a muscular contracture or prolapsus, **CAUSED** by a vertebral **SUBLUXATION**, as its **CAUSE**, superior to itself.

ADJUST VERTEBRAL SUBLUXATION which **CAUSES** all effects; open occlusion, release pressure, restore transmission,

and ALL muscles will rebuild back to normal and all misalignments will disappear. When they do, all strains, jerks, jars, and twists will be absorbed within normal range of body so to do; misalignments, per se, will disappear, and health will be completely and generally restored within that body.

Thus Specific system is at work and Chiropractic principle and practice is preserved in its purity for posterity.

CHIROPRACTIC ADVANCEMENT

"Systems and technique change far more rapidly than do one's individual customs and habits—we find it very hard to get out of a rut of our own making; to just exactly the extent that a Chiropractor is interested in spines.

"A large percentage of the human race are blest with a degree of health quite satisfactory to themselves, so at the very onset a large percentage of the spines at present in use amongst the world's peoples are of no interest to us as Chiropractors. To what degree is a Chiropractor interested in the spines of people who are not healthy? Because there are twenty-four movable segments in the spine would appear to be a poor reason to be interested in every individual segment of any one person's spine. A Chiropractor used to be interested in misaligned spines, primarily because the sick public, being of a trusting nature, gave him the opportunity of attempting to realign these misalignments. That excuse would appear to have gone now. Just exactly what part of the spine of a sick person has a Chiropractor legitimate cause to be interested in? We feel sure that all thinking Chiropractors will admit that the day when it was considered to be good practice to adjust everything from atlas to coccyx has gone. We do not use the above sentence purely as a figure of speech—it is an actual fact that this was one of the phases which Chiropractic has been through. What a Chiropractor practicing in 1933 is primarily interested in is that particular section or area in the spine where he has good reason to believe that nerve impingement is taking place. Years ago, there were no means of knowing exactly where this area of nerve impingement was. Now, with the NCM, we have a guide which actually locates this nerve interference. The use of the NCM has naturally brought in its wake the system which is rapidly gaining ground, called 'Hole in One'. This system as we have remarked in previous issues of 'The Progressive', goes to basic root of the philosophy of Chiropractic—the 'Hole in One' shouts from the housetops and also proves what it shouts, that disease is caused by 'AN IMPINGED NERVE.'

"It is regrettable, from sick person's viewpoint, that Chiropractors are not designed along lines of precision machines. If this were so, we should have a condition approximating the following: a patient would come into your Consulting Room. You would take an NCM reading, find amongst other things a reading between atlas and axis of two points left. You would then

take an X-ray spinograph of patient and decide that this nerve pressure was caused by axis being PLI. The precision machine would then be set by the insertion of the necessary jigs, an automatic adjustment would be given, axis would be moved PLI without any guess work on Chiropractor's part. It would in the nature of things be a perfect adjustment, and it would in the nature of things relieve the nerve pressure, as shown by the NCM. If that nerve pressure is relieved by a perfect adjustment, as B.J. describes it, 'the adjustment with that extra something,' you have a miracle case on your hands. The patient WILL grow better, and being that at the time you were a Chiropractor operating as a precision machine, there would be no wondering how it was done. You would know how it was done. You would be quite justified in saying before the adjustment was attempted that it WILL be done, and that you know that the nerve pressure will be relieved, and that patient WILL grow better.

"The foregoing sentences are prompted by many of the discussions that are going on amongst Chiropractors concerning the 'Hole in One' and the NCM. The X-ray we are glad to say has been taken more or less at its face value as an aid towards better Chiropractic by the big majority of Chiropractors practicing at present time. A Chiropractor will say, 'Yes, the Hole in One is quite all right but it doesn't work in all my cases.' If the Hole in One works in some of your cases, why doesn't it work in all? There is only one logical answer to that question, and that is that in those of your cases where the Hole in One has not worked, the Chiropractor has been at fault. His technique as regards the use of the NCM might be perfect; his analysis of the spinal conditions shown by the spinograph might be perfect, but the third part of the 'Hole' has not been perfect—the Chiropractor has given an adjustment that he only thought was an adjustment. It is very hard, even in the Chiropractic world, to make fish of one and flesh of another. The so-called miracle case is only a miracle case as compared with the poor adjusting technique that most Chiropractors practice. They think they know how to give adjustments. There is not 5 per cent of the Chiropractors in the field today who can give an adjustment as good as the day they left school or college; and it behooves all Chiropractors, no matter what their degree of skill might be, to practice every day until their skill at least approximates that of any other skilled craftsman. We pay our half-crown or so, and go and see one of these non-stop variety shows of the moment. We see a man in front of a large audience juggling plates on the end of a billiard cue; throw half a dozen balls or plates in the air, one after the other, and keep them there. We see an acrobatic dancer doing body contortions that make us marvel. We very seldom stop to think, whilst looking at and enjoying the show, the hundreds of hours of intensive practice and training that have been expended to acquire the degree of efficiency whereby they could make their living. We feel that if any Chiropractor would give only a fraction of the time which an acrobat gives whilst learning how to give a double somersault, he would without question be a veritable king amongst Chiropractors, and we sincerely hope that the suggestion we put forth in the last issue of the 'Progressive' concerning an adjusting competition will be seriously

thought of by our Executive Committee, and that all our members will take the competition in exactly the same spirit that a boxer or athlete takes when preparing for his next match or race."

(The Progressive, Vol. 3, No. 4, November, 1932, 19 years ago)

WHEN THE STEP-UP COMES IN

The Specific system makes it possible to get worse cases well quicker. There is no doubt, to all who learned it competently, use it efficiently, and are honest in observing its elements in application.

In a sense, we are doing nothing now we didn't do in former days. In those days we adjusted "subluxations" — yes, many of them. Today we adjust A subluxation — one of them; and it might be the same place in the same way. Then wherein lies the difference?

Difference is not so much in what we DO but in what we DON'T do; not in good we do today so much as in damage we DON'T do. In former days we gave AN adjustment, not KNOWING whether it was right place, right time, or in right way. Today we KNOW when, where, and how to give an adjustment.

Obviously, reverse information saves that difference. Today we know when NOT to, where NOT to, and how NOT to give "adjustments". Obviously, when you know WHEN, WHERE, AND HOW you automatically have reached conclusions of their opposites, when, where, and how NOT TO GIVE ADJUSTMENTS.

Gain is not in good we do today so much as in damage we do not do to case. This difference makes it possible to take cases 19 times worse and get them well 40 times quicker BY ELIMINATING 19 TIMES DAMAGE WE FORMERLY DID, AND ELIMINATING 40 TIMES LONGER WE PUT OUR CASE THRU IN OUR ATTEMPTS TO GET HIM WELL. This is the difference gained by definitely being able to KNOW when, where, and how.

WHEN IS A SUBLUXATION?

A vertebral subluxation is any vertebra that is out of normal alignment, out of apposition (1) to its co-respondents above and

below, where it *does* (2) occlude a foramen, either spinal or intervertebral, which *does* (3) produce pressure upon nerves, thereby (4) interfering with and interrupting the *normal quantity* flow of mental impulse supply between brain and body and thus becomes THE CAUSE of all dis-ease.

A vertebral subluxation IS a vertebral subluxation whenever it IS what is stated above, ALL elements being present. It is not such when ANY ONE ELEMENT IS ABSENT. It is not a subluxation unless (4) interference to transmission is present. We cannot have interference unless (3) pressure upon nerves is present. There can be no pressure upon nerves unless (2) size, shape, diameter, or circumference of foramen is changed. There can be no change in normal size, shape, diameter, or circumference of foramen unless (1) one vertebra is out of normal alignment with its co-respondents above and below.

Until the spring of 1930, it was generally believed and accepted as good practice that once a subluxation existed it had to be "adjusted" daily, regularly, constantly, and continuously for months, until patient was well. Since spring of 1930 we have consistently disproved this. It is NOT necessary to keep continuously and consistently hammering away at a subluxation to adjust it to normal position. Until the fall of 1932, it was generally believed that once a vertebral subluxation exists it is always present during a 24-hour period UNTIL ADJUSTED. We have found, consistently, that oftentimes ONE adjustment constituted AN ADJUSTMENT in fact; that continuous repetition is injurious to health of case.

We now present another interpretation of clinical research findings:

A SUBLUXATION IS NOT NECESSARILY CONTINUOUSLY PRESENT 24 hours a day, day after day, month after month, year after year. Vertebral subluxation is not consistently or continuously existing 24 hours of day before ANY adjustment of any kind is given. It may exist at times and for periods of varying length and not be present at others, which periods and length of time might vary considerably. It may exist 4 days of 24 hours each, continuously, out of a week. It may

exist 14 hours a day, continuously, out of a possible 24. It may exist 18 days, continuously, out of a month. These periods of 4 days out of a week, 14 hours out of 24, 18 days out of a month may be continuous periods or they may be broken up into fluctuating, intermittent or spasmodic spaces of time.

This much is certain: IF DAMAGING EFFECT OF A CONTINUOUS MULTIPLE AND ACCUMULATIVE INTERFERENCE IS PRESENT MORE OF THE TIME THAN INNATE INTELLIGENCE IS ABLE TO ADAPT NORMALLY TO OR IS ABLE TO REBUILD AND CORRECT, then there IS an accumulative DESTRUCTIVE survival value and disease is on the growth. IF ADJUSTMENT IS GIVEN AND VERTEBRAL SUBLUXATION REMAINS ABSENT TO WHERE EFFECT IS A CONTINUOUS MULTIPLE AND ACCUMULATIVE RESTORATION OF INNATE INTELLIGENCE MENTAL IMPULSE SUPPLY AND IS ABLE TO ADAPT AND REBUILD, then there IS an accumulative CONSTRUCTIVE survival value. In either case, whether case is growing better or worse, depends upon HOW MUCH OF TIME VERTEBRAL SUBLUXATION IS PRESENT OR ABSENT, whether it be a minority or majority of time, and whether bad works faster per hour than good can repair or balance, per same time involved.

We know that fevers, as a type of dis-ease fundamental in character, have a rise in temperature beginning usually at about 4:00 p.m., reach their peak about 8:00 p.m., and reach a sub-normal ebb at about midnight. Case again gets a similar rise about 4:00 a.m., reaches its peak at about 8:00 a.m., and ebbs at or about noon. As CAUSE, so goes EFFECT. As EFFECT, so IS cause. SUBLUXATIONS RISE AND FALL in periodicity, as regularly as do observed symptoms.

In approaching this problem of periodicity of dis-ease, we can work from either of two ends. We can offer the solution that as the end-organs DEMAND so does brain aim and try to SUPPLY. As supply is shut off, so demand cannot be supplied. Doesn't demand, exceeded by supply, create an increased feverish activity which gives a rise in temperature, by backing up on forward flowing current? Or, by creating a demand, via cycle, can't we demand more at tissue cell than brain cell can get thru subluxation? Can tissue cell ever demand more than normal?

Will brain cell attempt to send more than normal? Can more than normal get thru subluxation? If what gets thru subluxation is less than normal, and tissue cell expresses less than normal, and brain cell sends down normal, and subluxation lets less than normal get thru, how can demand and supply back up and increase NCM reading at place of interference? And where is demand and supply; is it at and in tissue cell or brain cell? Who knows what supply is or why there should be a demand? Who is demand and supply? Is there ever ANY demand and supply at tissue cell, or is all demand and supply a mental recognition of absent quantity at tissue cell and is not all supply an Innate mental understanding at and in brain, based upon an interpretation of quantity of function that is or is not expressed at tissue cell?

To argue that Innate reverses herself is an attempt to explain symptoms by symptoms from symptom approach of disease. We can offer other solution that brain-organ stands ready at all times to supply any and all normal demands made upon any and all parts of body providing supply can get thru to perform function. As supply is shut off, BY A CAUSE, so demand cannot get thru to perform itself. ANY rise in temperature is created because of INCREASED INTERFERENCE TO POSSIBLE TRANSMISSION. This explanation works from CAUSE TO EFFECT. Former explanation attempts to explain how symptoms, because of symptoms, work from one effect to another. Vertebral subluxations rise and fall, in periodicity, in degrees, exactly as do observed symptoms which are their effect. If subluxation increases, fever rises. If interference increases, fever rises. As subluxation "subsides", fever is lowered. Intensity of mean-line heat reading as well as marked quantity and quality of nerve-pressure, heat-interference reading is a graph pattern which can be measured as accurately as a fever chart pattern kept of rise and fall of temperature as taken by a clinical thermometer taken by a nurse of same case. WE CAN NOW, FOR FIRST TIME, SCIENTIFICALLY ACCOUNT FOR PERIODICITY OF DIS-EASE, with a proof of irregular periodicity of its vertebral subluxation cause.

Innate brain, as source, is always 100 per cent quantity, ready, willing to meet any *normal* demand from its body. At other end, in tissue cell, is a constant functional necessity, demanding a 100

per cent supply. If there are NO interferences, *normal* supply will equal *normal* demand; and *normal* demand will be met by *normal* supply. But things are NOT equal in dealing with problem of sickness and health. Between Innate brain and Innate body is a vertebral subluxation producing dis-ease. THIS SUBLUXATION PREDETERMINES QUANTITY OF SUPPLY THAT CAN GET THRU TO MEET ITS OWN DEMAND. Subluxation is at all times REGULATOR OF UNNATURAL AND ABNORMAL SUPPLY TO MEET UNNATURAL AND ABNORMAL DEMAND. If subluxation is 1 per cent, then there is a 1 per cent occlusion, a 1 per cent pressure, a 1 per cent interference, and a 1 per cent unbalanced supply. Demand may be 100 per cent, but supply will be hindered TO EXTENT OF SUBLUXATION. So we can step up or step down varying degrees of subluxation which interfere with balancing of flow of law of demand and supply in tissue cell. SUBLUXATION, AS CAUSE, ALWAYS DETERMINES EFFECT, AS EFFECTS, AT TISSUE CELL. Subluxation limits law of demand and supply. Law of demand and supply in tissue cell NEVER effects degree of subluxation.

In exact ratio as subluxation exists, in degrees, so does its occlusion, its pressure, its interference, its heat readings as determined by NCM. Quantity of nerve-interference nerve-pressure break-heat-reading IS DETERMINED BY DEGREE OF SUBLUXATION and is not determined in any sense by presence or absence of any effects at peripheral end of nerve which is purely an effect. EFFECTS DO NOT PREDETERMINE CAUSE, BUT CAUSE ALWAYS PREDETERMINES EFFECT. As subluxation varies, up and down its scale, within its range of possibilities, so does effect run up and down its scale in law of demand and supply. To assert that law of demand and supply, existing in an end-organ, reverses itself and backs up to and creates, increases, or decreases heat reading, is to affirm an old medical principle that effects create causes internally within ourselves. This is not Chiropractic!

Hypothesize a case of prolapsus of stomach. In this case a subluxation is producing pressure, interfering with a normal supply to stomach, hence dis-ease. There IS a demand from stomach for a normal 100 per cent mental impulse supply. Some of it is getting thru. If it were all getting thru, stomach would not be

prolapsed. Here is an example of stomach, end-organ, peripheral conditions, mentally defined, as demand and supply. As a result of vertebral subluxation, we have an occlusion, a pressure, an interference, and a heat reading, quantity of which IS DETERMINED BY DEGREE OF ALL ELEMENTS AT PLACE OF SUBLUXATION. Were this not so, all Chiropractic, as a principle or practice, would be fundamentally wrong. Quantity of heat reading, at subluxation, is not determined by conditions which justify a demand and lack of supply to and in stomach. Quantity of heat reading, at subluxation, is determined by degree of subluxation with pressure and interference.

Backing up, there comes a time when we concede there are fundamentally TWO laws of demand and supply: one external, other internal. A man walks along the street. He slips, internally. He meets sidewalk, externally. Here is an EXTERNAL AND INTERNAL law of demand and supply. As a result, a concussion of forces, a shock; a demand internally which he cannot meet externally, or a demand externally which he cannot supply internally. Net result — vertebral subluxation. We now get into question of law of INTERNAL demand and supply, for existing between is vertebral subluxation which forecloses impossibility of internal demand meeting internal supply.

To affirm that internal demands which cannot be met within themselves back up to and affect vertebral subluxation, pressure, interference heat reading, is to affirm a long-known, well-established principle of medicine. To affirm that internal tissue cell demand, which cannot be met, is caused by a vertebral subluxation, which never does and cannot back up efferently on itself as a cause, is to affirm a long-known well-established principle of Chiropractic.

Specific clinical research workers have read cases and observed vertebral subluxations at various times of day. At some hours, some days, interference reading IS present. Same case, tomorrow, same hour, may have no or little break reading. We may have another case that will register certain readings at certain places, at certain times of day, regularly, but none to be found any other hour of day. Other cases will record certain readings at certain places almost regularly, except as to varying degrees; but none found any other hour of day. Other cases will record readings some places regularly any hour of day, or any

day of week, while certain other readings may or may not be present at varying hours or days. Thus A VERTEBRAL SUBLUXATION IS NOT ALWAYS A VERTEBRAL SUBLUXATION AT ALL HOURS OR DAYS, PERMANENTLY AND CONSISTENTLY, UNTIL ADJUSTED.

This conclusion of fact can be deduced only (a) where case after case has been given a regularity of reading covering long periods of observation; (b) where case after case has been carefully, accurately checked and a continuous record made; (c) where cases are checked regularly at same approximate time of day thruout entire period of observation. Obviously, this conclusion could not be deduced if (a) cases were observed for a few days or two or three weeks; (b) where no records are ever made and entire matter is memory; (c) where cases would be checked at convenience of case which might be morning one day and evening the next, changing variable elements which could reliably account for all variances. One peculiarity about observing cases is that no two present common conditions of study. After checking this observation for more than twenty years (1951), we have been unable to deduce any LAW that remains fixed to all alike on the question.

It is vital TO READ CASE WHEN SUBLUXATION IS PRESENT. If we knew exactly WHEN it would appear, as to hour or day, length or shortness of stay, we could and would advise case to come DURING ITS EXISTENCE, check it, and adjust it out. But no two cases run true to any law. In any one day it might be at a certain hour. On next day, it might be at very opposite time of day.

One type of case in which this manifestation comes clearly to fore is epilepsy. We have studied this type particularly because it proves INTERFERENCE CLEARLY, altho observations are also possible on many other types with as marked clarity; altho in many chronic types it does not make it possible to be observed at all.

A case of epilepsy will come for days or weeks with daily checks, and no interferences showing. Suddenly subluxation slips into picture, interference occurs, and a seizure is on. If a Chiropractor could read this case within a reasonable time BEFORE or shortly AFTER seizure, interference will be plainly

marked and easily found. An adjustment GIVEN THEN will correct it to normal position where it may remain for an indefinite period, assuming it is given in right way, at time of existence, at right place. Further observation shows if this then-existing subluxation is NOT adjusted when it exists, it will gradually fade out and remain away an indefinite period of time. BUT IF LET ALONE AND NEVER ADJUSTED, IT WILL GRADUALLY KEEP STEALING UPON GAPS THAT INTERMITTENTLY EXIST UNTIL IT KEEPS OCCURRING MORE FREQUENTLY AND EVENTUALLY WILL SHORTEN THOSE GAPS BETWEEN UNTIL SEIZURES COME FREQUENTLY AND MORE IN DEGREE.

Idea that ONCE A VERTEBRAL SUBLUXATION it exists 24 hours a day must now give way to newer observation that all which is necessary to reduce health of an individual is that it be more or less present more or less of time, which gradually decreases distance of time between, which decreases health time periods and increases disease time periods, effects of which increase in severity or in periods of time and reduce resistance of tone of tissue structure and thus introduce its opposite or dis-ease of tissue function.

We can materially step up our 1932 efficiency of 19 times worse 40 times quicker, in taking cases and getting them well much quicker IF WE HAVE A CASE UNDER OBSERVATION EACH HOUR OF 24 HOUR DAY, EVERY DAY OF WEEK; MAKE AN HOURLY READING AND ADJUST ONLY AT SUCH TIMES AS IT DOES APPEAR, which more than likely would make adjustments MORE FREQUENT, ON MAJOR, than occur now under once-a-day reading system. As it stands, our case appears once each day. At that particular hour READING MAY NOT BE PRESENT. It might appear at some other hour of same day. Coming at a stated daily hour, finding no reading, no adjustment is given that day and any accumulative constructive survival value we might render THAT DAY is not rendered because we were NOT present when vertebral subluxation DID appear. Our case appears daily, and for several days or weeks subluxation may stay out, but sometime during some day IT DOES APPEAR. If we are fortunate in making reading on day and hour when it is either coming in or going out, we can and

will render service of tremendous value beyond our wildest dreams.

Our non-scientific friends, taking advantage of this scientific known weakness, would say:

"To be positive, sure, and get subluxation adjusted, we would adjust ALL vertebrae, whether subluxated or not; whether creating interference or not; thereby missing none if one existed, regardless of time of day, whether it was or was not present when the case called at our office."

Hazardous evils in such situations far overshadow good. 23 vertebrae do not need adjustment because they are not subluxated, therefore any work done upon them would *create* not relieve interference 23 times where they might accidentally release one subluxation IF it happened to be existent at that time. If they accidentally stumbled onto the subluxation at time when it WAS present, some good MIGHT be done IF adjusted in right direction at right location; but, meanwhile they would be doing 23 times as much wrong in 23 places that needed no attention. It is better to wait until they KNOW, are certain, possess positive information and scientific data, and then do what needs be done, where and when it needs it, than to do many things wrong, at wrong times and places.

By having our case come daily, at an appointed hour, which hour has a regularity value, we are rendering competent POTENTIAL value greater than any other period of our history; but if we could have an hourly check, day by day, we would soon build a chart record which would give more exacting data to know when subluxation appears with more or less constant regularity and thus give an adjustment at that time, and very materially step up efficiency in health service.

Therefore the question: WHEN is a subluxation?

ADJUSTMENT, PER SE, IS NOT MODIFIED BY ABOVE

This subject should technically confine itself to two salient issues, viz., periodicity of dis-ease as caused by periodicity of subluxation, and whether demand and supply create, are created, or modify evidence secured in understanding same. One subject involved with so many angles cannot be discussed

by itself without being involved with others closely allied. It is natural that another phase attach itself, viz., in what way, if any, does "the adjustment with that extra something, having staying-put value" affirm or deny itself in connection therewith. Above confines itself TO VERTEBRAL SUBLUXATION AS A CAUSATIVE FACTOR; ITS FREQUENCY IN BEING PRESENT OR ABSENT, AND WHY.

It is peculiar to suggest a subluxation can be present and yet be absent, and still be a subluxation. However, that expressly states what we mean. A vertebral subluxation, to be technically and correctly understood, is any vertebra that is not in PERFECT apposition in its each and every articular facet in PERFECT AND EXACT apposition to its co-respondents above and below, with all abstract elements understood to be adjoined (with which we are not now concerned), such as occlusion of foramen, pressure upon nerves, interference with transmission, etc.

A vertebral subluxation is generally and usually loosely construed to be a vertebra that has gotten out of normal alignment and is permanently anchored in some abnormal position, from which position it does not vary until adjusted, either by accident or intention. In lay terms, this description may be sufficient. A vertebral subluxation is a vertebra which has, in part, in one or more places, lost its true, perfect, exact corresponding relationship with its each and every articular facet, superior or inferior, from which position it is rarely found anchored. We have seen balancing rocks, where a large body above rests upon a much smaller pivoting point below, which in turn rests upon a large base. At no time is the balancing rock unbalanced to toppling over, but it is always unbalanced in varying degrees. It might and does rock in any and all directions — sometimes more out of plumb, other times less. If it becomes completely unbalanced, it will be dislocated. Same condition exists with a vertebra which is subluxated. Not being seated in normal position, with true, firm, solid foundation between its superior surface and inferior surface of vertebra above; or being true and firm with solid foundation between its inferior surface and superior surface of vertebra below, it tends to be unsettled and sways from one position to another, sometimes swaying more, sometimes less. From the moment subluxation occurs, it begins a growing movement of hoboeing, roving, and roaming about; mov-

ing from one minute place or position, from one degree of abnormal position to another; at some times creating greater occlusion, pressure, and interference than others; ALWAYS doing SOME damage, sometimes more, sometimes less; ALWAYS destroying SOME degree of abnormal energy flow, sometimes observable with NCM and sometimes so minute in interference it is beyond observance. When it hobbles, roves, or roams sufficiently to exaggerate an abnormal condition and thus magnify interference to produce resultant resistant heat, we ascertain its presence; when opposite occurs and it tends to seek normal position and minimize abnormal position, thus belittle interference to reduce resultant heat, we cannot always ascertain its presence because its range is less than even that sensitive instrument; NEVERTHELESS, A SUBLUXATION IS ALWAYS PRESENT IN EITHER EVENT. Those are conditions, both large and small, we have been discussing when we talked about periodicity of dis-ease in connection with periodicity of subluxation as well as with their relations with law of demand and supply.

Existing long enough, some day those subluxations will multiply and amplify symptoms, pathologies, and dis-eases until they become so grossly apparent that patient understands he is sick in an end-organ. A demand for RELIEF will obtain. He may consider a Chiropractor, little thinking that it now does lie within realm of aid of a competent, efficient, honest Chiropractor to actually establish a permanent health in that body by reversing its cause, with hope he CAN and WILL locate THE vertebral subluxation which IS cause, correct it, and health will be restored to his body.

In the past, average Chiropractor's concept of what constituted an adjustment was generally and loosely construed to be gradual replacement, step by step, degree by degree, of a vertebra out of normal situ, to wrack it from its abnormal anchored position, and gradually replace it to its normal position until it finally becomes anchored again. Eventually, if he kept hammering away long enough, he MIGHT get it back to some sort of normal position where it MIGHT stay. Little did he think it could be done ONCE and REMAIN. It might be like a surgeon who, having a case with dislocation, would take months to gradually re-

place it to normal position, degree by degree, day by day. On contrary, we know he does it ONCE and it remains.

Today, scientific Chiropractor has a concept that there is ONE DEFINITE EXACT SEATING PLACE FOR EVERY ARTICULAR FACET OF SUBLUXATED VERTEBRA, AND THERE IS ONE DEFINITE EXACT SEATING PLACE WHERE THAT VERTEBRA MUST EVENTUALLY BE RESTORED; AND WHEN IT IS, IT WILL PERMANENTLY CEASE ITS HOBGING, ROVING, AND ROAMING ABOUT. WHEN ONCE IT IS ADJUSTED TO PERFECT SETTING IN RELATIONSHIP WITH CO-RESPONDENT VERTEBRAE ABOVE AND BELOW, IT WILL BE ANCHORED TO WHERE IT BELONGS, FOLLOWING WHICH THERE WILL BE RESTORED A PERFECT FUNCTIONAL FLOW OF FUNCTIONAL ENERGY TO SICK BODY.

In the past, average Chiropractor was taught HE was able to bring this about, so he proceeded to punch, shove, twist, wrench, and wrack 24 vertebral bones from occiput to coccyx, continuing for an indefinite period from one week to a year, on as many as 6 places up to where some take 24 vertebrae 3 times up one side, 3 times down the other; others hit away as often as every 5 minutes on as few or as many, hoping, praying, thinking, and believing they MIGHT adjust the right one. Occasionally, such DID ACCIDENTALLY happen and health was restored, at least in a sufficient number to prove the Chiropractic principle and practice sound. Too many times it did not happen, and in many instances opposite occurred. Cases were made worse by meddling of man in wrong places, wrong directions, at wrong times, too often. Reason for failures lies in fact we thot ourselves competent to know more than we did about many conditioning elements which were at times BEYOND THE REALM OF MERE MAN. We thot fingers could "feel a subluxation" and mental studies could "determine where a pressure upon nerves existed." Today we rely upon spinograph and neurocalometer to go beyond man into realm of science to prove it for us. We are now compelled to go beyond physical action of mere educated man to accomplish ultimate desire of a perfect complete and exact setting of vertebra in that act called AN ADJUSTMENT OF A VERTEBRAL SUBLUXATION.

Today we understand there is only ONE intellectuality — INNATE INTELLIGENCE WITHIN BODY OF PATIENT — which DOES know what normal and perfect position of a vertebra is; what it was before subluxated; understands clearly how far and how much it is out of perfect setting, and knows exactly how, where, and when to replace it back to normal perfect apposition with each and every articular facet, with co-respondents above and below, with which it has grown from babyhood to present hour.

Today, Chiropractor approaches his case as a problem, desiring to work WITH THIS INNATE INTELLIGENCE IN BODY OF PATIENT, THAT INNATE IN PATIENT MIGHT MAKE ADJUSTMENT, thereby ONCE AND FOR ALL correcting vertebra to NORMAL position. In exact ratio as understanding of the principle applies itself correctly, we reduce number of times we ATTEMPT to make an "adjustment" by ultimately letting Innate Intelligence do it ONCE. WHEN THIS INNATE ADJUSTMENT HAS TAKEN PLACE, it no longer hobs, roves, or roams about. It is established where it belongs. It is anchored in normal setting to which, for which, and by which it grew. ONCE THAT ADJUSTMENT OCCURS, all we have suggested about the off-and-on periodicity of subluxations ceases to exist. On very reverse, we have an ANCHORED VERTEBRA ANCHORED BY THAT ADJUSTMENT WITH THAT EXTRA SOMETHING WHICH HAS STAYING-PUT VALUE.

There is a distinction between what we say about off-and-on roaming about of a subluxated vertebra and that ANCHORED VERTEBRA ONCE CORRECTLY ADJUSTED.

CAN WE ESTABLISH A RULE OF POSITION OF SUBLUXATION CORRESPONDING WITH LOCATION OF INTERFERENCES?

This question is asked with more regularity, and students of the Specific have jumped to more ill-advised statements regarding this than any other in our present-day work.

Suppose we have a left interference between atlas and axis — is it true that we always have a LEFT subluxation of atlas or axis, to correspond? As of this date of observation, the answer is NO. With pressure, as given, you can have any one of eight

possible subluxations of atlas or axis. It might be right or left, superior or inferior, or any combination thereof, of any one of two vertebrae, which correctly adjusted, will release pressure, restore transmission, and return health.

It is impossible at this date to lay down any definite LAW on this question.

OBSERVATIONS OF COMPARATIVE READINGS

Suppose you had a four-foot-high thermometer on your wall. Suppose temperature of room is 50° F. Suppose you hold a hot iron in your hand. Suppose that hot iron is 90° F. Suppose you stand ten feet away from thermometer. Suppose you gradually crawl up to thermometer at gradual rate of one foot per minute. In ten minutes, thermometer would crawl up to 90° F. Suppose you crawl away at same rate of speed. In ten minutes thermometer would be back to room temperature of 50° F.

This illustration gives a gradual ten-minute climb and a gradual ten-minute reduction back to normal, 50° F. This gradual climb and reduction of thermometer would illustrate a MEAN LINE HEAT READING.

Suppose your room temperature were 50° F. and you had hot iron at 80° F., and you slapped this on ball of thermometer AT ONCE. You would see thermometer jump up to 80° F. IMMEDIATELY. Suppose you removed hot iron AT ONCE. You would see thermometer DROP BACK TO 50° F. AT ONCE.

This would be an example of an off-and-on increased and decreased temperature comparative to passing of NCM detectors off, on, and off a hot nerve, and your reading would be a "break" reading of like character.

SPEED AND SPACE IN READINGS

Greatest evil in highest efficiency in readings with NCM is seeming inability of average Chiropractor to KEEP SLOW ENOUGH to read IN break readings and read OUT mean line readings for what they are. Tendency is to read *too* rapidly, which reads OUT break readings and reads IN mean line heat as break readings. Obviously, if mean line heat readings are

read IN as break readings, picture begins definitely on a wrong foundation; formula has definitely and positively changed, and all fails.

You read one patient; another enters. You hurry to get one out of way, to take next one. DO NOT HURRY WHEN READING. This must be done slowly.

After several months or years, non-consciously readings ARE stepped up, faster and faster. Soon you fail to accomplish commendable work. It will pay to return to The PSC annually to be checked on this point.

As you study spinal column, you observe vertebrae get thicker, from above downward, farther down spine you go — thinner above, thicker below. This permits a variation in SPACE between vertebrae. If you were to consider an imaginary space between center of centra of one vertebra above and centra of vertebra below, you will find above superior-inferior space thinner above and thicker as you proceed down spinal column. This does permit a VERY SLIGHT difference in speed between cervical readings and lumbar readings. For this reason cervical readings should be given much slower than any other location in spinal column. Spaces are thinner, distances between nerves thinner, therefore slower readings to pick them up.

READ SLOWLY IN ALL REGIONS OF SPINE. READ MORE SLOWLY AND MORE CAREFULLY IN CERVICAL REGION.

WHO GOES FORWARD? WHO GOES BACKWARD?

Previous to 1895, before Chiropractic, there existed various backbone cracking procedures of ALL vertebrae, by hand. There were different systems of backbone treatments of ALL vertebrae, by hand. There were methods of backbone massage of ALL vertebrae, by hand. There was a distinct, well-known, taught and practiced branch of the medical profession that moved ALL vertebrae in devious, various, and many ways, to straighten transitional areas, kinks, irregularities, deformities, moving ALL vertebrae, by hand.

(Proof: See ANY book on orthopedic surgery printed previous to 1895. See D. D. Palmer's book, THE CHIROPRACTOR'S ADJUSTER,

pages 189-225. See illustration in D. D. Palmer's book, page 220, showing it done by orthopedic surgeons previous to 1895.)

1895. — THE BIRTH OF A REVOLUTIONARY IDEA — CHIROPRACTIC.

D. D. Palmer singled out THE location of CAUSE of all disease, made a definite exacting statement, contrary to all medical principles and practices. He set at naught all theories of *treatment* of spinal disease, symptoms, and pathologies upon which medicine, surgery, and orthopedic surgery were based. He approached sickness problem from an exclusive INTERNAL BACKBONE CAUSE WITHIN MAN FOR ALL DIS-EASE.

D. D. Palmer said: A subluxated vertebra is THE cause of ALL dis-ease. A vertebra is SUBLUXATED when it is out of correct apposition with co-respondents above and below;

- when it occludes a foramen
- when it produces pressure upon nerves
- when it interferes with transmission of mental impulse supply between brain and body.

In principle, he advocated singleness of a ONE-VERTEBRA subluxation cause, not a multiplicity of many.

1895. — THE BIRTH OF A NEW PRACTICE — VERTEBRAL SUBLUXATION ADJUSTMENT BY HAND.

D. D. Palmer singled and set out ADJUSTMENT of a vertebral subluxation for LOCATION of CAUSE of all dis-ease;

- made a definite, exacting ADJUSTMENT action, contrary to all medical treatments upon spinal columns, upon which medicine, surgery, and orthopedic surgery were based;
- presented an ADJUSTMENT THEORY in backbone, contrary to treatment of diseases via back or belly, upon which medicine and surgery were based;
- approached sickness problem from an INTERNAL-BRAIN-POWER-CURE PRACTICE WITHIN MAN, if it could get from brain where it was, to body where it was needed.

D. D. Palmer said: A subluxated vertebra should be and could be adjusted by hand only. A subluxated vertebra could be adjusted only when out of correct apposition with co-respondents above and below;

- when it occludes a foramen
- when it produces pressure upon nerves
- when it interferes with transmission of mental impulse supply between brain and body.

D. D. Palmer also said: To give an adjustment to a subluxated vertebra is to open occluded foramen;

- to release pressure upon nerves
- to restore transmission of mental impulse supply between brain and body
- to recreate health in all parts of body.

In practice, he advocated adjustment of **SUBLUXATED VERTEBRA ONLY**. He constantly and emphatically contrasted between various orthopedic surgery backbone cracking procedures of **ALL** vertebrae, by hand; different systems of backbone treatment of **ALL** vertebrae, by hand; methods of backbone massage of **ALL** vertebrae, by hand; orthopedic surgery with its treatments of symptoms, pathologies, of **ALL** vertebrae, by hand; **AND** adjustment of a *specific* vertebral subluxation as **CAUSE**, to restore abstract force to **CURE** all dis-ease of both hard structure (bones) and soft structure (tissues).

In practice, D. D. Palmer denied value of any orthopedic surgery that moved **ALL** vertebrae, devious, various, and many ways, to straighten transitional areas, kinks, irregularities, deformities, moving **ALL** vertebrae, by hand.

In principle and practice, D. D. Palmer laid down a specific, definite, positive ultimate internal brain-mind cure and internal vertebral subluxation cause objective designed to accomplish certain thing for certain reason at certain place located in the backbone.

1900. — THE BIRTH OF MERIC SYSTEM.

The PSC discovered, developed, and presented the meric system to systematize a study of nerve distribution, between

brain and body, via spinal column; to more accurately ascertain paths of flow of mental impulse supply between brain and body via spinal column; to move correctly desire to locate THE vertebral subluxation needing adjustment. According to meric system, we analyzed a multiplicity of believed-to-be vertebral subluxations. Meric system was developed to locate, by more definite means than hitherto used, subluxation D. D. Palmer believed existed solely in backbone which he thot he had found by more crude methods and means.

1910. — THE SPINOGRAPH.

The PSC adopted, adapted, and developed technique of spinography to secure correct information of incorrect positions of vertebrae believed to be subluxated. Up till that date, we followed dictates of fingers in feeling and our minds in judgments, based on locations with use of meric system. Spinograph proved us frequently in serious error as to correct information of incorrect positions. Spinography was developed to ascertain by more definite means than hitherto used, correct knowledge of position of vertebral subluxation, which D. D. Palmer believed existed solely in backbone which he found by more crude methods and means.

1915. — MAJORS AND MINORS.

The PSC discovered, developed, and presented Majors and Minors principle and practice to stress a limited adjustment of fewer places, of more vital value to life and death. Majors and Minors did not deny *number* picked by meric system, but stressed greater importance of some over others, adjusting ONLY important ones. Majors and Minors was developed to locate, by more exacting means than hitherto used, the SPECIFIC VERTEBRAL SUBLUXATION which D. D. Palmer believed existed solely in the backbone which he had found by more crude methods and means.

1923. — THE NEUROCALOMETER.

The PSC adopted, adapted, and developed NCM to prove accurate localization of positive information re nerve pressure interference. NCM did, in localizing nerve pressure interference, what spinograph did for accurate localization of correct information of incorrect positions of subluxated vertebrae in rela-

tions to each other. We used NCM to ascertain by definite means, correct locations of nerve pressure interferences, when they existed, when they did not exist, when an adjustment was given and pressure released, or when pressure might have been increased by wrong "adjustment."

1930. — THE HOLE-IN-ONE OR SPECIFIC IDEA.

Union of information between NCM providing WHERE and WHEN nerve pressure interferences existed, which diminished multiplicity of meric system interferences to less than we formerly believed existed, from many down to ONE; plus information of incorrect position as revealed by spinograph of abnormal position of that ONE vertebral subluxation, produced Hole-in-One idea. This enabled us to make practical, by scientific means, theory believed by D. D. Palmer that somewhere in that spinal column was a subluxated vertebra producing pressure upon nerves and its correction would restore health.

1931. — HOLE IN ONE OR SPECIFIC SYSTEM.

HIO "system" was an elaboration, by process of reduction and elimination of unnecessary and an intensification, by process of addition of necessary, of elements which builded and included a principle and practice OF ADJUSTMENT which reduced multiplicity of "subluxations" to ONE; reduced frequency of adjustment to less than ONE place, ONCE, on an average of 3 weeks of daily calls, making it possible to take cases 19 times worse and get them well 40 times faster, by doing only constructive work, eliminating all destructive "adjustment" at wrong places. Working principle of Specific to adjust ONE subluxation, ONE place, ONCE, to get case well of ALL dis-ease in ALL parts of body.

A PRACTICE PROOF OF THE CHIROPRACTIC PRINCIPLE OF D. D. PALMER

PRINCIPLE of Chiropractic is stated above.

PRACTICE of Chiropractic, between 1895 and 1923 (twenty-eight years ago), was a matter of conjecture, hypothesis, guess, and accident, based on fingers feeling, eyes seeing, and minds thinking.

Until 1930, PRACTICE of Chiropractic had not attained efficiency of the PRINCIPLE as laid down above.

In 1930, the Specific idea, and in 1931, the Hole in One system began to reach culmination stated by D. D. Palmer when he laid down his principle in 1895.

The PSC NOW TEACHES AND USES THE 1895 PRINCIPLE OF D. D. PALMER AND THE 1951 SPECIFIC PRACTICE OF B. J. PALMER WHICH BRINGS EFFICIENCY OF PRACTICE SOMEWHERE NEAR EFFICIENCY OF PRINCIPLE.

ANALYSIS OF SPECIFIC SCIENTIFIC APPLICATION OF CHIROPRACTIC IN 3,000 CASES

D. D. Palmer discovered the principle of Chiropractic. He was the founder of The Palmer School of Chiropractic, Davenport, Iowa. It was THE FIRST Chiropractic school, therefore "CHIROPRACTIC FOUNTAIN HEAD."

B. J. Palmer, son of D. D. Palmer, is the developer of Chiropractic. He is President of The Palmer School of Chiropractic, Davenport, Iowa. He is universally recognized by Chiropractors, publishers, authors, encyclopedias as authority on things Chiropractic. It is befitting that he should carry on Chiropractic traditions, principles and practices of his father.

B. J. Palmer introduced neurocalometer into Chiropractic in 1923. Its use has taken guess out of specifically finding and proving exact location, WHICH vertebra, WHERE located, is producing pressure upon nerves. Its use establishes competently WHEN it is and WHEN it is not; proves whether an adjustment was such or just another wrong punch somewhere in back.

Evolution of information gained since 1910 with spinograph, and since 1923 with neurocalometer, developed to high efficiency, and in 1930 B. J. Palmer announced the Specific principle of practice of Chiropractic. Instead of incorrectly "adjusting" many places, with mental reservations of doubt of all, this new principle and practice proved correctness of ONE necessary, and developed an adjustment that accurately and competently positioned it, restoring health with scientific precision.

The Chiropractic profession looked askance upon this new

method. Change from guessing to knowing, from multiplicity of wrong places to one single correct place, was so radically different. PROOF was demanded.

Following is an analysis of 3,000 case reports received from practitioners who have studied and applied the Specific principle and practice after studying method under personal supervision of B. J. Palmer. That it is more than B. J. Palmer said, is obvious from proof herein deduced. Specific scientific application of Chiropractic now makes it specifically possible for competently educated and properly equipped Chiropractor to take worse cases and get them well quicker than at any period in Chiropractic history.

WHAT IS PROOF?

Proof of Specific, as a means of taking worse cases and getting them well quicker, is demanded.

Proof offered by any man directly interested is often challenged. Here is PROOF offered by disinterested Chiropractors who have no interest in outcome except as it furthers progress of Chiropractic.

A study of these reports proves that, with rare exception, Specific was exclusively used.

In this report, Chiropractors do not make statement that every case in their practice is strictly Specific. Majority are working exclusively with Specific system on all cases. Some Chiropractors occasionally use meric system on a case; but by far the majority are Specific.

A study of statements issued by Chiropractors shows in all cases determination of location for adjustment was made by NCM; and in majority position was determined by spinograph and was not based on symptomology, history, or diagnosis made by themselves or physicians.

A study of symptomatology, pathology, history, and diagnosis as reported in these cases proves almost every imaginable disease is listed — running gauntlet from acute to long-standing chronic types. Letters reveal, in vast majority of cases, diseases listed were reported by case or physician and not ascertained by Chiropractor — he not being interested from that viewpoint.

A study of these reports proves majority of Chiropractors used little, if any, diagnosis, diagnostic instruments, or methods; did not try to ape medical men or pretend to be such. In practically all cases, only Specific method of spinal analysis was used, proving it stands independent and can be relied upon exclusively.

A study of reports proves nothing but Chiropractic principles and practices were used, including NCM to locate interferences, spinograph to determine position, toggle-recoil adjustment, and NCM post-check to prove correctness of adjustment—all of which were efficiently, competently, accurately, and honestly rendering an all-Chiropractic service.

What IS proof? If investigator's mind is prejudging, maliciously denying facts, does not seek truth, is deliberately blinding his mind to evidence, then 10,000 cases could not break down the barrier. There are men who prefer horse and buggy and deny possibility of aeroplane. There are Chiropractors who refuse to investigate spinograph, preferring to rely upon fingers. They will die denying the NCM.

What IS proof? If one demands PHYSICAL proof of presence or absence of physiological function, it would be impossible to PROVE any case to any person, thru publications, by mail, at a distance. That which would constitute PROOF to Chiropractor who had case from beginning to end, would not be proof to any other person at a distance, who did not have case under constant observation.

What IS proof? If one studies principle, applies practice, and it works, is that proof? Isn't that the way all proof begins, is, and always ends? Mental conclusions based on facts and evidence are proof when deduced. If THIS be PROOF, it can be proof with statements that can be relied upon as true and truthful. If this be proof, how many cases must be piled up to demonstrate it?

What IS proof? Regardless of physical conditions, mental conclusions of Chiropractor are not opinion of patient. Patient alone has ONLY proof, for he knows when he was sick, when he became well. How else can another on outside prove anything on inside of another? Physician can diagnose "pain" but he cannot PROVE presence of "pain" in another; neither can he prove its absence.

Numerical and Percentage Analysis

Number of Chiropractors reporting Specific cases in this analysis.....	171
Average number of cases per Chiropractor.....	17½
Number of Specific cases reporting in this analysis.....	3,000
Number of cases reporting WELL.....	2,218
Number of cases reporting IMPROVED.....	745
Number of cases reporting no improvement.....	11
Number of cases not reporting results.....	26
2,218 cases WELL is 73.9 per cent of 3,000 cases	
745 cases IMPROVED is 24.8 per cent	
11 cases NO IMPROVEMENT is .3 per cent	
26 cases not reporting results is .8 per cent	
Cases not reporting number of adjustments.....	108
Number of adjustments given to 2,892 cases.....	24,052
Average number of adjustments per case, to get 2218 cases WELL and 745 IMPROVED.....	8.2
8.2 adjustments per case, to get 2218 WELL and 745 IMPROVED is .034 per cent of 24,052 adjustments.	
Atlas adjusted, out of 2963 cases.....	1,089
Axis adjusted, out of 2963 cases.....	1,722
3rd cervical adjusted, out of 2963 cases.....	107
All other vertebrae, including occiput, sacrum, and coccyx.....	56
Number of cases in which no major was stated.....	37
56 cases with different places of adjustment in 2963 cases proves that only a possible 56 were adjusted at more than ONE place. (It is fair to state in this analysis that the most of the "extra" UNNECESSARY places were confined to CERTAIN FEW persons who had not yet perfected themselves in Spe- cific technique.)	
Number of places adjusted, per case.....	1 in 2907
2907 cases adjusted one place only is 96.9 per cent of 3000 cases.	
Number of cases where more than one place was adjusted, or no place was stated.....	93
1089 atlas out of 2963 is 36.78 per cent	
1722 axis out of 2963 is 58.11 per cent	
107 3rd cervical out of 2963 is 3.61 per cent	
56 cases with different places adjusted, out of 2963 is 1.88 per cent	
37 cases out of 2963 in which no major was stated is 1.21 per cent.	
Number of cases adjusted according to spinograph.....	1,647
Number of cases adjusted according to palpation.....	1,011
Number of cases with no report as to spinograph or palpation.....	342
1,647 cases adjusted according to spinograph is 61.78 per cent of 2658 cases.	

1,011 cases adjusted according to palpation is 38.22 per cent of 2658 cases.

Compare 2218 cases reporting WELL with figure of 1647 adjusting according to spinograph.

Compare 745 cases reporting IMPROVED with figure of 1011 adjusted according to palpation.

This comparison of 61.78 per cent by spinograph, as against 38.22 per cent by palpation, proves difference of 23.56 per cent advantage in results of spinograph over palpation.

Out of 171 Chiropractors whose cases comprise this analysis, 151 stated they used Specific system exclusively. This proves that cases listed are not culled, handpicked, choice, and only favorable successful ones.

Gross time reported on all cases where time was reported, while under observation, computed in days.....211,887
 Cases on which Chiropractors did not report time.....182
 Average time on each of 2818 cases, while under observation, where time was reported (days).....75.19
 75.19 days average to get 2218 cases WELL and 745 IMPROVED is .035 per cent of 211,887 days.
 Gross number of visits made, including days when adjustments were and were not given, as reported in this group.....7,858
 Number of adjustments given during these visits.....1,990
 Average interval in days, between adjustments PER VISITS AND ADJUSTMENTS MADE, approximately 4.
 Total time stated for this group of cases while under observation, as stated, 15,374 days.
 Average adjustment given in this group, while under observation, FOR FULL TIME stated — 1 in 7.7 days.

This report shows that of 3,000 cases, 2218 got WELL and 747 IMPROVED, by adjusting 1 place only in 2907 cases and 2 or more places in 56 cases, with an average of 8.2 adjustments per case, with an average adjustment given 1 in 7.7 days; where ATLAS ONLY was adjusted in 1089 cases, AXIS ONLY in 1722 cases, 3rd CERVICAL ONLY in 107 cases, 56 other places in other cases; spinograph being used in 1647 cases and palpation in 1011 cases.

Report further proves NCM was 100 per cent exclusively used, as efficient, competent, accurate, and honest means used on 3,000 cases to locate interference and determine before and after checks as proof of correct time and place of adjustment.

CHAPTER 5

The Story Of

THE TORQUED SUBLUXATION THE TORQUE ADJUSTMENT

(Published 1933 — Revised 1951)

WHY IS THERE A SPECIFIC?

WHY IS THERE A REASON FOR A SPECIFIC?

WHY IS SPECIFIC SUBLUXATION FOUND ONLY IN
CERVICAL REGION?

WHY IS SPECIFIC ONLY AMONGST SUPERIOR THREE
CERVICAL VERTEBRAE?

WHY IS SPECIFIC NOT FOUND ANYWHERE ELSE IN
SPINAL COLUMN?

WHY ARE THERE NO SUBLUXATIONS FOUND ANY-
WHERE ELSE?

WHY IS "ONCE A MAJOR, ALWAYS A MAJOR?"

These and more questions keep coming up. They demand reply.
If they are, an answer exists. What are those answers?

In spring of 1930, the Specific movement began to take form. It was born in the mind of one man. He alone proclaimed it, believed it, practiced it. More he practiced it, more he believed it. More he believed it, more he proclaimed it. Others, believing him, listened to what he said. Gingerly, with fear and trepidation, they tried it out in a few cases. It worked. They added more. Soon a few were using it exclusively in their practices. More *they* used, more *they* believed. More they believed, more they proclaimed. Story was told others. Others began to think, believe, use, and proclaim. Today hundreds are using it competently. Other hundreds are trying it. Still more hundreds are learning it. None finds it wanting.

But there is one mind that is years ahead of all — that first mind that thought it first. As he creates, he develops; as he develops, he teaches; as he teaches, others try. It is now a snowball growing into huge proportions.

There is at our command positive proof of 5,000 field cases on which Specific system has been tried and found workable. All these cases got well from cervical major Specific adjustment alone.

Let us ask! If these cases get well from cervical adjustment alone, WHY is major to be found ONLY in superior cervical vertebrae? WHY are there no subluxations below? WHAT is peculiar, different, that makes a subluxation possible ONLY in superior 3 cervical vertebrae? In what way, if any, is there anything different there, than is to be found anywhere else? WHAT exists in superior 3 cervical vertebrae that makes some *vital* condition different there than is to be found at any other section of spinal column? That thousands of all kinds of cases ARE getting well by exclusive adjustment, confined exclusively to this area, is strikingly present in our ranks. WHY? FACT is, in practice. WHAT THEN IS EXPLANATION OF FACT, IF IT IS KNOWN, IN CERVICAL REGION THAT MAKES THIS AREA WHAT IT IS?

In THE HOUR HAS ARRIVED (See Vol. XXIV, Palmer, 1950), we laid down FIRST half of No. 3. Few deciphered. Few follow closely enough to know a NEW version when it appears. It suggested a solution for many unknown unsolved problems.

In brief (we suggest you reread the article): Subluxations of superior cervical vertebrae interfere with the ONWARD flow of mental impulse supply that could not get thru interference. There was a BACKWARD pressure into brain, from which it was issuing. Brain is seat of generation of all human life forces. Brain makes as it needs. It needs as it uses. Its requirements are based on demand from periphery as interpreted from afferent half of normal cycle which is never under pressure or interference, to meet efferent needs of body. Every second, minute, and hour there is energy created to supply all parts of normal body. Brain is not a storage plant. It generates for present needs. When it manufactures and cannot get thru, there is congestion in brain; or if there is normal adaptation and reduction in manufacture, there is an absent quantity in body. Brain would thus represent a damming backward of supply, and brain in thinking value would be stalled with an excess of power that could not be used within itself. This affected body below because of an ABSENCE of normal quantity. Brain would become energy-

clogged and body energy-empty. Congest any part of brain and you effect all parts of body that should be fed by it. Any case which was suffering below for want of energy, might at same time be suffering above because of an excess of it.

Chiropractic Text Book, Vol. XIV, page 13, states: Art. 43. Innate Brain.

"That part of brain used by Innate, as an organ, in which to assemble mental impulses.

"It is supplied with mental impulses directly from Innate Intelligence, whose headquarters it is.

"It is a vital spot and cannot be dis-eased.

"Its existence is actual, but its location is theoretical.

"There is no transmission of mental impulses from Innate Intelligence to Innate brain. There is no necessity, Innate being right here. For this reason, it always has 100% mental impulses. This being true, it has perfect function, perfect metabolism, and never has incoordination. It does not assimilate poisons from the serous stream. It is of course subject to trauma, the same as any other tissue. It must be supplied with nutriment and blood as any other tissue. A virulent poison can penetrate it. If it is injured by trauma; if it is subjected to anemia—lack of blood and nutriment; or is poisoned in spite of its resistance, then death ensues speedily, for it will not endure dis-ease or trauma. It must be remembered that although Innate's management is nothing short of miraculous, she is after all limited in what she can do because of the limitations of matter."

Hour Has Arrived (Vol. XXIV) states:

"However, there is ONE phase that we have all been prone to almost overlook, viz., what happens to brain. In past, we have taken position that Innate brain cannot be affected and Educated brain could be and often is in phases of insanity, which is subject to grades of variations of interpretations. But there remains one doubt which will be cleared up; what happens to Innate brain when body goes thru a process of auto-intoxication; internal poisoning? Let us make this clearer. Function flows from Innate brain to spinal cord, thru spinal nerves, to kidneys. A subluxation occurs along path of this nerve, enroute, carrying function to kidneys. Kidneys become paralyzed; inactive. Poisons are now dammed back into body. All portions of body become involved with an internal absorption of this internal poison. What right have we to presume that Innate brain is exempt from absorbing some of this, same as other parts of physical body? If Innate brain can

and does absorb poison, where is IT to receive ITS source of power from, to rebuild itself? And, if it does become intoxicated, how can an intoxicated brain produce a healthy, normal supply of mental impulses to supply body that needs them more at this time than any other? How is kidney to receive a normal supply of healthy mental impulses when subluxation below has been corrected; when brain that generates them is not normal within itself?

"Granting Innate brain is source of all mental energy, mental impulse supply for all body; granting our majors are usually found close to skull line as in the atlas or axis; granting this does not occlude lumen, produces pressure, constricts nerves, offers resistance and interference to transmission—might not this congest and congeal backward the onward flow of this thot-power intended for body? Might not some of it work itself out as increased heat at point of resistance; and yet rarely do we get a NCM No. 2 reading at this point that will rise much over 3 or 4 points. We do know that adjustments here get our gross number of cases well. Might it not be that there is a damming back of mental impulses, especially when it is close to its source of generation? And if this be a possible explanation, would this not affect whole of Innate brain more or less, and thus react directly upon many other parts of body, though their nerves be free from interference to transmission below point of exit in spinal column? Might it not be that an adjustment at atlas or axis does more than release a spinal cord pressure, more than restore a normal transmission inferior to itself; might it not actually release a congestion superior to itself and thus clear all Innate brain and thus clear all transmission below in many organs that otherwise would be sick? Might it not be that actual atlas or axis resistance might be low, and then superior internal brain congealing or damming back might accentuate much brain interference which cannot be read, altho manifested below in many places, in many ways? These are questions which remain, as yet, unanswered directly. Future has many secrets to solve. That we are doing the thing, is obvious.

"One of the inconsistencies in what is taking place is: you and we have had cases; we have palpated, found 'subluxations' according to meric system; we have 'adjusted' them; cases have gotten well. Let us remind ourselves that we were, in those days, 'adjusting' every 'subluxation' as was, where was, and believed them to be; which was that every palpated deviation WAS a 'subluxation'; hence it was rarely that a superior cervical, atlas, or axis did not come in for its share of ADJUSTMENTS at same time that we 'adjusted' merically below. Any conclusion based upon what happened below, could have happened from above and we not know it."

These two contradictory thots represent difference in develop-

ment of our idea between 1927 and 1931 when each was developed. We now present enlarged idea as of 1933.

EXCLUSIVE PROCESS OF DEDUCTION

Only by mental and physical process of exclusion can a fact be ascertained and proved. One who follows inclusive ideas, methods, or processes is never in any position to make any statement with competency, accuracy, or with stability of any issue being proved true. Suppose a sick person is given six different methods of treatment, each different from all others. Which method got him well, assuming he did get well? A STATEMENT can be made that a certain one did. What proof is there as to correctness of statement? None! There are five methods to negative statement.

Suppose a sick person be given five methods of treatment and one method of adjustment, each different from all others—which method got him well, assuming he did get well? A STATEMENT can be made that one of five treatments, or one method of adjustment succeeded. What proof is there as to correctness of this statement? None! There are five methods to negative the statement.

Suppose a sick person is given six different “techniques” of adjustment, each involving a different principle from other five. Which technique or principle got him well, assuming he did get well? A STATEMENT can be made that a certain technique or principle got him well. What proof is there as to correctness of statement? None! There are five techniques and principles to negative the one. These are INCLUSIVE methods or processes; and because they INCLUDE diluting elements, finger of fact cannot be spotted upon ONE as THE successful item.

Suppose, on reverse, a sick person be given ONLY ONE adjustment, at ONE place, in ONE way, to exclusion of all other methods, techniques, or means; and person got well. A STATEMENT can now be made that a certain technique or method, at a certain place in a certain way, DID get him well. What proof is there? Both INCLUSIVE as well as EXCLUSIVE. Only ONE was included; all others excluded. Having ascertained that one thing, done one way, attained one result; then if duplicated time and again, it establishes a practice that proves a principle.

Average Chiropractor glibly rattles conclusions which are not justified. He uses inclusive mental and physical processes, and shouts exclusive mental and physical conclusions. In average Chiropractor's office he uses antipodal principles and practices; opposing methods and techniques; varying them from time to time, more or less changing places from week to week or month to month; and when his opinion is asked about merits or demerits of any one he uses, he rushes into print with an opinion not warranted.

Average Chiropractor is a practitioner, not a scientist. He has a living to make. He feels he cannot afford "to take chances" on failing to get a case well; so he includes all his conscience permits (which is usually quite elastic where dollars are concerned) "so he cannot fail." Under this all-inclusive process *occasionally* a sick person gets well. He has no means of knowing which system or technique; which place or manner of adjustment achieved result. He rarely duplicates result on another case, exactly alike, if he were to receive such. It is exception to rule that has been a means of sustaining his business. Sick people get well just often enough to let minority overshadow large majority on which he fails.

Because of this inclusive process of thinking and acting, average Chiropractor's opinion as to merits or demerits of principles or practices is unreliable and unworthy of attention upon part of any scientist who seeks truth or fact reached by exclusive method.

Research means what it implies; research worker separates out failure elements and eliminates them; separates out success elements and retains them; constantly accumulating elements by exclusive process until that day arrives when he can definitely make a positive assertion of fact; prove it, and duplicate it.

That sick people have always gotten well, in ancient days as well as modern, from superstition to science; internal as well as external methods; by mental faith as well as physical drugs, there is no doubt. That sick people go to Chiropractors of varying shades of belief in Chiropractic; with different techniques, adjustments, methods and means, and get well, there is also no doubt. That sick people go to Chiropractors who punched them all up and down the back and got them well, using varying methods of racking, stretching, jerking, and pushing back-bones,

from head to tailbone, and got some of them well, we admit is true. But somewhere through this mysterious maze, there IS a principle and practice that DOES work and can be deciphered; brought to surface and proved to be THE exclusive principle and practice by means of which result IS attained. Whatever this principle and practice is, no matter how deeply hidden behind curtain of mystery (even though it works) it CAN BE found, known, understood, and used EXCLUSIVELY and then made to work knowingly and constantly in all cases alike.

If people are well and get sick, it is because of violation of ONE certain principle and practice. If sick people get well, it is because of a correction of that violation of ONE certain principle and practice. A cancer is a cancer in body of one who has it, regardless of what they think, say, do, or believe as regards religions, methods, or systems of treatment of that cancer. If a cancer gets well in body of one who has it, it gets well of cancer regardless of what person thinks, says, does, or believes as regards religions, methods, or systems of treatment of that cancer. If a patient had paralysis and he went to 100 different Chiropractors and each described a different reason for his getting paralysis, fact would still remain that patient having paralysis had violated ONE principle in his body that caused it. If a patient having paralysis went to 100 different Chiropractors and each used a different technique, system, or method; and each succeeded in getting him well, fact would still remain that only ONE principle and practice succeeded in getting him well. Somewhere hidden in every body is A SINGLE PRINCIPLE AND PRACTICE that works, either as a cause or as a correction. To seek THAT principle and be able to APPLY *that* principle is ultimate objective of research seeker; and to solve that human enigma can be attained only by exclusive process of trying them all, each by each, in individual form, and watching net result.

Admitting that all methods get some sick people well; admitting that all methods interpret a different principle and apply a different method, it is a question of percentage of accidents in use of and application of THE principle and practice that works, even though unknown. If true reason why a FEW succeed in getting well, could be separated from maze of work done; and what was used that brought about that result could be eliminated from chaff, certain things must stand out to prove a principle of a

certain and definite character, located at a certain place. If true reason why THE MANY failed to get well could be separated from maze of work done; and what was used that failed to bring about that result could be accumulated, certain things must stand out to prove that certain other principles of uncertain and indefinite character, located at certain places, did not work.

Gradually, by process of exclusion and elimination of failure; gradually process of accumulation of success has delivered into our hands a knowledge of THE human principle and practice, its location and correction, of THE cause and THE adjustment of that cause of ALL dis-ease, regardless of what sick thinks, says, does, or believes. THAT is knowledge and practice we NOW present to exclusion of all other knowledges and methods we have ever presented. It is THIS knowledge and practice, when exclusively used, that now materially steps UP percentage of success and steps DOWN percentage of failure out of all proportion of all previous experiences in history of securing health to sick, regardless of century, name, or method.

LOCATING SPECIFIC

SPECIFIC CAUSE for presence of ALL dis-ease, regardless of whether it be brain congestion above or body laxity because of an absence below, lay somewhere between brain and body. This SPECIFIC was finally located somewhere in region of superior three cervical vertebrae. Close below brain and close above body was a vertebral subluxation occluding a spinal cord making it impossible for energy to get from brain down into all parts of body. Dis-ease existed below because of absence of a normal quantity to produce ease.

Specific principle was born when this portion of dis-ease problem had been solved.

It was with fear and trepidation, and with no little courage, that we struck forth on unbeaten areas to see if that principle was sound; whether it worked in practice; notwithstanding all have had cases that pointed the way, thruout years past, yet none had courage sufficient to follow thru to its ultimate logical conclusion. It took conviction to approach a group of cases and CONFINE ADJUSTMENT EXCLUSIVELY TO THOSE RE-

GIONS to see exactly whether *practice* would sustain *principle*. After many cases have been clinically observed under this *exclusive* process, practice was found to sustain principle. It was in fall of 1930 that practice was publicly advanced to our profession with hope that it would be given a fair and just trial to see if what we had found was true in other instances, with other people, in other lands, and could be established as a universal truth.

Gradually, profession has approached new idea. Chiropractors have exclusively confined adjusting to that region, regardless of conditions with which cases have been suffering; regardless of location of effects. It was a bold step from general adjusting to major adjusting; it was bolder to advocate one specific adjustment, at one place, for all cases, in preference to major adjusting at a few places determined by meric system.

Between spring of 1930 and fall of 1933, thousands of cases were exclusively adjusted by Specific major confined in superior cervical region, with one adjustment, one place, one direction, consistently.

Thousands of cases have been adjusted with results reported attained in greater percentage of worse types, in quicker time than under any known previous system within our history.

To attain this end, Chiropractors were asked to confine their adjustment to this region

- to adjust only when a subluxation, in fact, was present
- to adjust only when there was interference present
- to not adjust anywhere else, regardless of whether evidence of past educations seemed to direct attention to other places, in other ways.

To attain this end, it was further essential that Chiropractors

- not adjust in this or any other region when a subluxation, in fact, was not present
- when there was no interference present
- regardless of what evidences seemed to direct attention to some other locality.

To ascertain deciding factor, in information upon which action depended, it became more important that Chiropractors use NCM

as *sole and exclusive guide* to determine WHEN interference was or was not present; to use SPGH to prove direction of subluxation ascertained at location of interference; and to use only that kind of adjustment with that extra something with staying-put value to correct its malposition.

(How well this solution of our problem has been exclusively used, as a profession, is problematical. Many Chiropractors are following its strictest interpretation. Many are trying to do so but slip backward into what they once knew and once used. Others think they are using it, but continue to do today what they did yesterday with its complexities. It is needless to say, that no one can ever arrive at a truthful understanding who mixes one system with another, constantly.)

To PROVE that there WAS one exacting, positive SPECIFIC for cause of ALL dis-ease and that it was located exclusively in superior three cervical vertebrae, then, required:

- NCM to locate presence or absence of interferences and locality of same;
- to check accurately and truthfully, by exclusive process, what happened to all other interferences in balance of spine as well as what happened to all symptoms, pathologies, histories, and diagnoses in balance of body.
- SPGH to prove abnormal position of vertebra subluxated, when it was a subluxation in fact.
- Adjustment with that extra something with staying-put value to correct it,
- using that adjusting posture which made it most easy to accomplish desired objective.

When all elements were properly, intelligently, efficiently, competently, correctly, and honestly applied, we proved that ANY AND ALL CASES, (exclusive of trauma as applied in general terms) REGARDLESS OF HISTORY, SYMPTOMS, PATHOLOGY, OR DIAGNOSIS; REGARDLESS OF ORGAN OR ORGANS INVOLVED ANYWHERE IN HUMAN BODY, COULD AND DID GET WELL BY CONFINING ADJUSTMENT TO THIS SPECIFIC AREA.

If hypothesis is true and works, that ONLY subluxation causing interference is in cervical region, then it negatives possibility of a vertebral subluxation creating interference any lower place in spinal column.

It is anatomically true, broadly speaking, that spinal canal gradually *increases in size* from above downward; from atlas neural canal to fifth lumbar neural canal. It is further anatomically true, broadly speaking, that intervertebral foramina increase in size from above downward, from third cervical to fifth lumbar. It is further anatomically true that *quantity of nerve fibres decreases* in number as they desiccate from above downward as they pass off from and decrease their number from above downward. It is further anatomically true that *greatest motion is at top and this motion gradually limits itself*, getting less, in rotation, extension, and flexion, as we go from above downward. More superior the vertebra, greater its motion; more inferior the vertebra, less motion it possesses.

Upon this series of anatomical facts we have:

1. Lower the vertebra, *less motion*.
2. Lower the vertebra, *larger the foramina*.
3. Lower the vertebra, larger the foramina, *the fewer fibres* pass through them; therefore inevitable conclusion that we are less liable to have a possible subluxation, with less occlusion; less pressure; less interference to transmission.

Opposite of first premise is also true. Spinal canal *decreases in size* from below upward; intervertebral foramina *decrease in size* from below upward; *quantity of fibres increases in number from below upward* as they assemble and gather into and help form spinal cord on their way either into or from brain; both afferent and efferent carrying directions. It is further a fact that vertebrae *increase their motion*, either in rotation, extension, or flexion, as they exist from below upward, including rocking backward and forward of occiput upon atlas; occiput and atlas rotation upon and within axis, etc.

Upon this same series of anatomical facts, here is conclusion we also reach:

1. More superior the vertebra, *more motion*.

2. More superior the vertebra, *smaller the foramina*.
3. More superior the vertebra, smaller the foramina, *more fibres passing through them*; therefore inevitable conclusion that we are more liable to have a possible subluxation, with more occlusion; more pressure; more interference to transmission.

Facts justify meritorious assertion that a subluxation cannot occur where there is room, even under compression, for nerves to emit without interference to their carrying transmission capacity. Evidence shows that up in and around magnum foramen, between magnum foramen and atlas, inside bony ring of atlas as interfered with by odontoid of axis, between inferior margin of atlas and superior margin of axis; where motion is greatest; where foramina are smallest; where greatest quantity of fibres exist, and mechanically the greatest possibilities exist for pressure, compression, constriction, there is every reason to maintain that here is ONE PLACE where no anatomical argument could disprove or dispel assertions we herein lay down for and in behalf of substantiation of fundamental Chiropractic principle.

Notwithstanding SPECIFIC PRINCIPLE HAD NOW BEEN ESTABLISHED IN PRACTICE in clinical cases, satisfactory to all who used system with accuracy and did not under-rate or over-rate elements involved, there still existed unknown element of WHY IS MAJOR SPECIFIC LOCATED AT THIS PARTICULAR CERVICAL PLACE AND IS NOT FOUND AT ANY OTHER IN SPINAL COLUMN? Now comes SECOND half of No. 3 in answer to that phase of our problem.

Let us interpolate for the moment. We were first Chiropractor to introduce X-ray into our work. It is now apropos that we reiterate first objective was to prove existence of a vertebral subluxation; second to verify our palpations or to correct them; third to seek for and locate "subluxations," etc. Between time of its introduction and profession awakened to its indispensability, we had taken many thousands of spinographs, studied them in conjunction with case research work. There came a time when we stepped out of active exposure of plates, developing and interpreting them. We then built up a very complete spinograph laboratory where assistants continued research work under our direct contact and direction. We have been a constant research

student, seeking further light in newer and better explanations of solutions of unknown problems hidden in our new science.

Notwithstanding we have been in direct touch with our spinographic laboratories and work is being conducted under our guidance, we have NEVER been satisfied that we had ever reached any accurate, satisfactory, or simplified form of correctly reading films consistent with facts we should have. FOR FIRST TIME, WE CAN NOW SAY (1933) WE HAVE REACHED THAT SOLUTION WHICH WE HAVE BEEN SEEKING FOR 20 YEARS AFTER HAVING STUDIED HUNDREDS OF THOUSANDS OF FILMS.

"How is it, Doctor, that I have taken pictures of my cases BEFORE adjustment; adjusted them for a long period, spinographed again and, to all appearances, the vertebrae seem to be in the same position as when I first spinographed?" "How is it, Doctor, that my cases come sick, go home well, yet I note no difference in the position of any vertebrae I believed showed subluxation?"

There have been before and after cases, where vertebrae DID show a difference in position. Why did some show a change, majority did not? These and more questions have been answered by showing that when a SUBLUXATION, in fact, had been adjusted, subluxation DID disappear. When they were misalignments we were "adjusting," no amount of "adjusting" ever could, did, or would change them. We were trying to read misalignments AS subluxations, and did not know difference.

OBSERVE CLOSELY

What, then, should we NOW seek to see? Take a group of LATERAL spinographs of cervical region — say not less than 50 — 500 would be better. Sort them over hurriedly. Set apart those which seemingly present greatest irregularities in misalignment in superior crevical regions. Look at this reduced group carefully, thotfully. Put them in view-box, one by one. Do not sit close to them, but stand back. Instead of studying detail, give them a general-contour-once-over. Get a long-range perspective of entire lateral cervical lines. Gradually reduce area until you have reduced it to region of superior cervical vertebrae.

Do they present anything in particular? Is there something unusual in their comparative positions which strikes you as irregular? We suggest culling over 500 to get a marked small group, for most of them AT FIRST might not seem to exhibit the fact we now bring forth. ALL will contain same conditions, smaller group will make them easier for the beginner to see. Small group, with EXAGGERATED conditions, will exhibit fact we now present so plainly, that there will be little if any doubt in your mind. Once you see it in small, exaggerated group, knowing then what to look for, you will see it in all.

Hastily pass small group of LATERAL views before you. WHAT DO YOU SEE? (SEE WHAT YOU SEE WHILE YOU'RE LOOKING AT THEM!) Somewhere in region between occiput and atlas

— atlas and axis

— axis and third cervical, you will see a KINK, TWIST, WRENCH, TORQUE which makes a more or less angular distortion OR BEND in general contour between two of above. This kink, twist, wrench, or torque is *mechanical*. *No other place in spinal column will it or can it be mechanically found*. It will exist pathologically. Usually this is between occiput and atlas; atlas and axis. Once you determine the kink, mark outline of size and contour of spinal canal. Mark outline of position of odontoid process of axis. Study deeply into that spinal canal and see HOW ODONTOID PROCESS IS SQUEEZING, COMpressing, AND OCCLUDING THAT SPINAL CANAL. Odontoid process may be posterior, anterior; twisted in or lateral to its normal position; but in some form it is ALWAYS squeezing INTO THAT SPINAL CANAL, shutting off flow of mental impulse supply inferiorly, and damming back into brain superiorly. Desiring to study matter further, get a normal atlas and axis, hold them in your hands, distort them as your spinograph reveals, and see what you produce. You thus, for first time, account for multiple spinal cord interferences which we read at various places below; account for existence of cicatrixes or scar tissues placed upon or around cord at places of friction in impingement of movement of one vertebra upon or around other in their many varied movements within subluxation range of motion; which accounts for possibility of so many dis-eases caused below by

ONE place above, regardless of distribution of nerves below in their millions of ramifications.

Three vital questions enter this problem, at this place, at this time, in these ways:

- 1.—Subluxation can be of occiput upon atlas
atlas upon occiput (in either event,
atlas being adjusted)
atlas upon axis
axis upon atlas (in either event,
either atlas or axis may be ad-
justed)
axis upon third
 - 2.—Endless possibility of any small or large number of fibres being impinged, pressed upon. It could be 1,000, 1,000,000, more or less. Who knows?
 - 3.—Endless possibilities dormant, becoming active, in degree of pressure involving quantity of flow of mental impulse supply. It could be 1,000 fibres 100 per cent. It could be 1,000,000 fibres 1 per cent. Who knows? Between three potential possibilities, some specific location, some definite number of fibres, some positive quantity of interference exists; subject to some slight change within its subluxation area of motion from day to day, week to week.
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How now should films be read? Take a lateral view. Study contour lines. Follow that anterior curve, from below upward, clear thru to skull; then somewhere along that line you will note a break in that contour; kink, twist, wrench, or torque will appear, making a more or less right angle distortion between some two of mentioned vertebrae. Take A-P views and do same. Put them in view-box, one by one. Do not sit close to them, but stand back. Instead of studying detail, give them a general-contour-once-over. Get a long-range perspective of entire A-P cervical lines. Gradually reduce area until you reduce it to region of superior cervical vertebrae. Now take lateral kink, twist, or torque of lateral view and piece it together with same

kink, twist, or torque of A-P view, as to compound direction, and you will know *exactly* how to direct direction of adjustment with that extra something, with staying-put value. Read plates any other way, they will not stay. Read them *THAT* way, apply forces correctly in *THAT* light, and they will stay put; readings will consistently check out, and stay out.

Lateral views show posterior arch of atlas inferior or superior if axis and other inferior cervical vertebrae are in normal relationship. Lateral views may show anterior arch of atlas inferior or superior if axis and other cervical vertebrae are in normal relationship. Lateral views may show spinous process of axis inferior or superior if atlas is in normal relationship with occiput. Same may be true of third cervical; but *kink, twist, wrench, or torque* is never *mechanically* found lower than that.

CORRECT adjustment depends upon WHICH ONE is THE one making kink, twist, or torque. If atlas is THE one making that kink, twist, wrench, or torque, then that is THE one to adjust to correct it. It is possible "to move" axis; it is possible to get TEMPORARY reductions in readings by "adjusting" axis; BUT NO ADJUSTMENT HAS EVER BEEN GIVEN UNTIL VERTEBRA WHICH WAS KINKED, TWISTED, WRENCHED, OR TORQUED INTO A SUBLUXATION IS ADJUSTED UNTIL IT NO LONGER IS A KINK, TWIST, WRENCH, OR TORQUE. If axis is THE one making that kink, twist, wrench, or torque, then that is THE one to adjust to correct it. It is possible "to move" atlas; it is possible to get TEMPORARY reductions in readings by "adjusting" atlas; BUT NO ADJUSTMENT HAS EVER BEEN GIVEN THAT WILL ATTAIN PERMANENT REDUCTIONS, WITH PERMANENT RESTORATION, WITH PERMANENT SURVIVAL VALUE HEALTH, UNTIL VERTEBRA WHICH WAS KINKED, TWISTED, WRENCHED, OR TORQUED INTO A SUBLUXATION IS ADJUSTED UNTIL IT NO LONGER IS A KINK, TWIST, WRENCH, OR TORQUE.

A-P views show whether an atlas is left or right of its median line; whether left or right transverse is superior or inferior of normal position. A-P views also show whether spinous process of axis is left or right of median line and whether it is superior or inferior in its correct relationship with others above or below.

It is combined views of laterality and A-P which give combined twisted value of abnormal position.

It is folly for ANY person, and more so if he be a Chiropractor, to assume that HE CAN FEEL all this with his fingers, on outside of skin of patient. Even those of us most conversant with spinographic study of years, having studied hundreds of thousands of plates and films, have just seen, for first time, what is here revealed. We could not have become conversant with this true finding now, had we not studied films. If WE find it necessary to have spinographic films to SEE this series of mal-positions, how could anyone assume that he needs no films? NO PERSON IS COMPETENT TO UNDERSTAND NATURE OF AND LOCATION OF THESE KINKS, TWISTS, WRENCHES, AND TORQUES WITHOUT A SPINOGRAPHIC SERIES OF FILMS, PROPERLY, COMPETENTLY TAKEN AND HONESTLY READ. Somebody using fingers, palpating, could reach a fingermental conclusion, give an "adjustment," and MIGHT ACCIDENTALLY get it right. Accidents do happen in best as well as worst of regulated families. When human life is at stake, no person can afford to assume that risk.

1. Read carefully and slowly with NCM to LOCATE interference.
2. Spinograph your superior cervical vertebrae, both A-P AND lateral.
3. Read both A-P AND lateral views to ascertain direction of kink, at location of interference.
4. Read films, both A-P AND lateral, to seek combined directional knowledge of subluxation that is in that kink, twist, wrench, or torque.
5. Apply adjustment at *the* place, at *the* time, in *the* way that reverses that kink, twist, wrench, or torque.

While we mention both A-P and lateral views, we suggest emphasis upon lateral views, first, until you get idea of what we mean by a KINK OR TWIST, until you are able to understand and see wrench or torque in it. Kink, twist, wrench, or torque is more obvious and easier to see from lateral view. Once you gain information in question, to a point where you KNOW that you

see what you see when you are looking, you can take A-P views and see it as readily as you could on lateral views. In reading ANY case, ALWAYS have both A-P as well as lateral views. BOTH ARE NECESSARY to give CORRECT interpretation of two or three directional torque twists which always exist.

VERTEBRAL TORQUE AND ITS PECULIARITIES

Look at A-P spinograph, where a major portion of inferior of skull is showing, and you observe that if head is inferior on right, atlas is inferior on right, and body of axis is inferior on right. Spinous process of axis will be to left (on an A-P view) of median line.

When head, atlas, and axis are inferior on right, skull will lean over and backward towards right shoulder (judging from both A-P and lateral views). When that condition exists, head will not only lean towards and over onto right shoulder, but it will also lean posterior (lateral view) and backward (A-P view) or posterior inferior. From lateral view, axis spinous process will be inferior. A lateral view will show anterior of body of axis is superior in a separation between it and 3rd cervical. This separation between axis and 3rd cervical is a misalignment. Torque subluxation could be between atlas and axis. Subluxation might be a torque between atlas and axis. This would be a TRUE PLI subluxation and a torqued adjustment to ARS would be necessary to straighten this entire kink.

Look at another A-P spinograph, where some major portion of inferior of skull is showing, and you observe that if head is inferior on left; atlas is inferior on left, and lateral mass of axis is inferior on left. Spinous process of axis will be to right (on an A-P view) of median line. When head, atlas, and axis are inferior on left, skull will lean over and backwards towards left shoulder (judging from both A-P and lateral views). When that condition exists, head will not only lean towards and over onto left shoulder, but it will also lean posterior (lateral view) and backward (A-P view) or posterior inferior. From lateral view, axis spinous process will be inferior. A lateral view will show anterior of body of axis is superior in a separation between it and 3rd cervical. This separation between axis and 3rd cervical would be a mis-

alignment. Torque subluxation could be between atlas and axis. Subluxation might be a torque between atlas and axis. This would be a TRUE PRI subluxation and a torque adjustment to ALS would be necessary to straighten this entire kink.

If head, atlas, and axis are low on right, spinous process of axis is left of median line, and head leans down over onto right shoulder, and there exists a misalignment between axis and third cervical, torqued adjustment, given from PLI towards ALS would raise axis, atlas, and head on right side; straighten head from leaning towards right to a position in median line; also, by raising spinous process of axis from inferior to superior, it would correct misalignment between axis and 3rd cervical. With one TORQUED adjustment, all local as well as foreign elements of torqued subluxation are corrected.

If head, atlas, and axis are low on left, spinous process of axis is left of median line, and head leans down over onto left shoulder, and there exists a misalignment between axis and 3rd cervical, torqued adjustment, given from a PRI towards ALS would raise axis, atlas, and head on left side; straighten head from leaning towards left to a position in median line; also, by raising spinous process of axis from inferior to superior, it would correct misalignment between axis and 3rd cervical. With one TORQUED adjustment, all local as well as foreign elements of torqued subluxation are corrected.

There are four possible seeming exceptions to this common torqued subluxation rule that might misdirect your attention and cause you to violate these simple possible conditions.

1. In first instance, where everything is low on right, spinous process is to left of median line; yet, on a lateral view, spinous process of axis *appears* SUPERIOR. In this condition you might assume that it was a TRUE PLS subluxation. Even though spinous process IS superior, adjust it as for a PLI.

2. In second instance, where everything is low on left, spinous process is to right of median line; yet, on a lateral view, spinous process of axis appears SUPERIOR. In this condition you might assume that it was a TRUE PRS subluxation. Even though spinous process IS superior, adjust it as for a PRI.

Torque adjustment in No. 1 would be from PLI to ARS and NOT from PLS to ARI.

Torque adjustment in No. 2 would be from PRI to ALS and NOT from PRS to ALI.

3. In first instance, where everything is low on right, spinous process of axis appears to RIGHT of median line. If you determined position of a TORQUED subluxation by position of spinous process alone, you would conclude this was a PRI subluxation and torque your adjustment to ALS. You must not judge position of a TORQUED SUBLUXATED VERTEBRA from position of spinous process, but from position of entire balance of vertebra minus its spinous process. Spinous processes are often bent in youth in cartilaginous stage; or possess a green-stick fracture attained in later years. Even though head, atlas, and axis are low on right AND spinous process of axis is to RIGHT of median line, adjustment would be as though it were a PLI and is to be adjusted to ALS.

4. In second instance, where everything is low on left, spinous process of axis appears to LEFT of median line. If you determined position of a TORQUED subluxation by position of spinous process alone, you would conclude this was a PLI subluxation and torque your adjustment to ARS. You must not judge position of a TORQUED SUBLUXATED VERTEBRA from position of spinous process but from position of entire balance of vertebra minus its spinous process. Position of spinous process does not indicate a spinous process subluxation alone. Spinous processes are often bent in youth in cartilaginous stage; or possess a green-stick fracture attained in later years. Even though head, atlas and axis are low on left and spinous process of axis is to LEFT of median line, adjustment would be as though it were a PRI and is to be adjusted to ALS.

Same rule applies to where head, atlas, and axis may be low on right, spinous process to RIGHT AND SUPERIOR. This would be a PLI TORQUED subluxation and should be adjusted to the ARS. Opposite would also be true where head, atlas, and axis may be low on left, spinous process to LEFT AND SUPERIOR. This would be a PRI TORQUED subluxation and should be adjusted to ALS.

We shall elaborate more on this question later.

Later on in this article you are going to become impressed with fact that, regardless of where anterior or posterior tubercles of atlas are; regardless of where spinous process of axis is, these within themselves, per se, do not produce pressures or interfere with transmissions of mental impulse supply. You will also learn that regardless of where tubercles or spinous processes comparatively are in relation to skull or between themselves, vital issue is not where tubercles or spinous processes are, but what damage does the abnormal position of *entirety* of position of atlas upon axis; abnormal position of *entirety* of axis in relation to atlas; and how abnormal position of *entirety* of either affects position OF ODONTOID PROCESS which DOES occlude spinal canal, DOES produce pressure upon nerves, and DOES interfere with transmission.

Where head, atlas, and axis are low on right, and axis spinous process is left of median line, torqued subluxation is known as a PLI. This is now being titled A TRUE LISTING of a PLI torqued subluxation. Where head, atlas, and axis are low on right and axis spinous process is RIGHT of median line, torqued subluxation is still known as a PLI. This is now being titled A FALSE LISTING of a PLI torqued subluxation. Objective of torqued adjustment IS TO UNTORQUE THE TORQUE. This requires that low head, atlas, and axis on right must be "raised" superior. To do this requires that torqued subluxation must be untorqued by adjustment FROM PLI; therefore PLI is TRUE position of subluxation. If spinous process is to RIGHT of median line, then this torqued subluxation must still be untorqued by adjustment FROM PLI; therefore spinous process being to RIGHT is a FALSE position of spinous process but a true position of vertebral subluxation.

Where head, atlas and axis are low on left and axis spinous process is right of median line, torqued subluxation is known as a PRI. This is now being titled A TRUE LISTING of a PRI torqued subluxation. Where head, atlas, and axis are low on left and axis spinous process is LEFT of median line, torqued subluxation is still known as a PLI. This is now being titled A FALSE LISTING of a PRI torqued subluxation. Objective of torqued adjustment IS TO UNTORQUE THE TORQUE. This requires that low head, atlas, and axis on left must be "raised superior." To do this requires that torqued subluxation must be

untorqued by adjustment FROM PRI; therefore PRI is TRUE position of subluxation. If spinous process is to LEFT of median line, then this torqued subluxation must still be untorqued by adjustment FROM PRI; therefore spinous process being to LEFT is a FALSE position of subluxation.

One thing that will help in reaching these definite conclusions is to establish level or plane lines in your mind's eye; level or plane line of relation of skull to its atlas; level or plane line of atlas in relation to its skull AND axis; level or plane line of axis in relation to its atlas superior and 3rd cervical inferior. These level or plane lines, naturally, are purely as they strike the eye. They do not exist in reality although there is a reality to their existence. They can be established on lateral as well as A-P views. It is never necessary to go below 3rd cervical in thus establishing level or plane lines, except for purposes of comparisons of perpendicular lines of entire cervical region with kinks, wrenches, torques, or twists that exist between any named.

Every twist, kink, wrench, or torque has two choices, either in listing for subluxation or in direction for adjustment. Peculiar nature of atlas in rotation of head and itself upon axis, with head rocking forward or backward; and axis with its odontoid process in neural canal, with atlas rotating around it, makes either one focalized point for major in this region. At first it takes careful study to know which of the two is greater, in distortion, than other.

In instructing on this question, we find students who know intimately the natural, normal position of relations between head, atlas, axis, and 3rd cervical; have little difficulty in visualizing abnormal and unnatural when spinographs are shown and enlarged upon a screen. Without this foundation, it is difficult for average Chiropractor to know whether what he is looking at is proper or improper, normal or abnormal, natural or unnatural.

Sometimes atlas is THE one more out of natural relationship than axis. Sometimes it is axis. Majority are axes. (See table in this article). But it is important to discriminate.

In a study of specific torqued subluxations, in this major region where they can only occur, *majority* of atlas torqued subluxations are anterior and superior, either right or left; *majority* of axis subluxations are posterior and inferior. Of axes that are inferior,

majority will be right. This may be due to fact that *majority* of people are right-handed. We have yet to analyze a superior axis, judged solely by position of vertebra as a whole. Following table was made in summer of 1932 at a time when we were endeavoring to analyze this question of frequency of certain torques:

To ascertain frequency of torqued misalignments, comparatively, 500 X-ray plates were studied and analyzed with following result:

1. Occiput — inferior on left — 1.
2. Occiput irregular — low on right — 22.
3. Occiput irregular — low on left — 48.
4. Head tipped right — 43.
5. Head tipped left — 32.
6. Atlas right — 71.
7. Atlas left — 39.
8. Atlas right and inferior on right — 46.
9. Atlas left and inferior on left — 12.
10. Atlas right and superior on right — 2.
11. Atlas inferior on right — 13.
12. Atlas inferior on left — 12.
13. Axis right — 75.
14. Axis left — 61.
15. Axis right and superior on right — 4.
16. Axis right and superior on left — 1.
17. Axis left and superior on left — 4.
18. Axis inferior on left — 1.
19. Axis inferior on right — 1.
20. Axis superior on left — 3.
21. Axis superior on right — 3.
22. Axis left — Atlas left — 7.
23. Axis right — Atlas right — 21.
24. Axis right — Atlas left — 24.
25. Axis left and Atlas right — 25.
26. Axis right of Atlas — 7.
27. Axis left of Atlas — superior on left — 3.
28. 3rd cervical — right — 17.

29. 3rd cervical — left — 14.
30. 3rd cervical left of axis — 1.
31. 3rd cervical superior on left — 1.
32. No listing — 60.

Listings marked "irregular occiput" are those cases where occiput is not bilaterally symmetrical, therefore gives appearance of being a tilted head, yet in reality is not.

Ones listed "head tipped" right or left are those where there is actually a tipping of head but in nearly all of these cases there is also a tipping of at least part of cervical vertebrae with a *SUBLUXATION* of one vertebra. There are a very few tipplings of head alone but probably not more than 10 cases out of 500 represented here.

Under head "no listing" are those cases where so far as laterality is concerned, none could be detected of either atlas or axis.

Torqued subluxation may be between

- occiput and atlas
- atlas and axis
- axis and 3rd cervical

but torque adjustment will be given

- on atlas for torqued subluxation between occiput and atlas, or between atlas and axis
- on axis for torqued subluxation between atlas and axis, or between axis and 3rd cervical.

Torque adjustment will ALWAYS be EITHER ATLAS OR AXIS. In three years of study on this particular phase of our problem and its solution, and an observation of several thousand cases, we have yet to see ONE CASE wherein any "adjustment" was necessary on occiput or 3rd cervical; or any other vertebra inferior to third cervical. Occiput or 3rd cervical, at best, would be an *indirect* method in an attempt to correct *direct* torque. Farther one removes himself *from* atlas or axis, to correct torque between these two or contiguous one superior to inferior to these two, *the more indirect* his approach. Torque involves *ODONTOID PROCESS*. Farther one removes himself FROM TWO VERTEBRAE THAT INVOLVE ONDONTOID, more indirect approach is and less effective his "adjustment" will be.

One question which IS vital is to be able to decide accurately WHICH (atlas OR axis) to adjust. We know of no better way of answering that than to ask reader to carefully study level or plane lines as marked on illustrations and let each speak for itself.

One or other is "key" vertebra to every angle of torque that involves position of head, atlas, axis, and 3rd cervical in a direct combination torque; as well as all misalignments inferior to it in balance of spinal column. If atlas is adjudged to be torqued vertebra, DON'T adjust axis. If axis is THE offending vertebra, DON'T adjust atlas. ONE will unlock ALL if determined and adjusted correctly.

In every torque, position of head will be involved, either to left or right, forward or backward, in combinations. A lateral view will show whether head is leaning forward or backward. An A-P will show whether it is to left or right. Sometimes, and frequently, you will get a combination of back over either shoulder, showing both directions, etc.

In every torque, position of condyles of occiput is shown to be frequently off-balance on normal articulations with articular facets of atlas. Sometimes head is rocked forward of articular facets, or posterior. Adjustment, when correctly analyzed and adjusted, will so right position of atlas that occiput fits naturally and normally back into its position. Whatever merit may lie indirectly in any "condyle adjustment" or "cranial adjusting" is brought about by an *indirect* method of approach to attempting correction of direct at a distant point; sort of a "remote control" job. It is easier and far more lasting to locate direct and adjust it.

WHY!

Why should superior three cervical vertebrae be so essential that wrapped around them is cause of every dis-ease possible in human race? WHY should superior three cervical vertebrae be so essential that they could contain a torqued mal-position of their relationships that could create themselves into cause of every human dis-ease? WHY should three superior cervical vertebrae be so essential that we are forced, because of facts justifying, in saying that only thing that any human being can ever do for another human being, to relieve him of any dis-ease regardless

of location in his body, must be done at this location exclusively? WHY should three superior cervical vertebrae be so important that facts warrant our making statement that nothing done at any other place in human body is of value in restoration of health, except as it is done here? Why should we be compelled to emphasize supreme importance of this location to exclusion of any other vertebral segments of spinal column?

Answer is simple: epistropheus, fovea dentalis or odontoid contains mystery as well as its solution. As many years as we have worked with, studied, adjusted spinal columns, we have never realized mischief that is created in destruction of human health and life, as with this singular peculiarity that is not found connected with or between any other two vertebrae. As much as we have studied and researched spine, until recently none realized that this singular process on axis contained true solution to specific for restoration of all health to all organs of any human body.

One difficulty we have found in instructing on this question, even amongst Chiropractors who are supposed to know spinal columns better than other distinctively specialized separate types of students, is that they do not sufficiently know their NORMAL osteology.

In The Palmer School of Chiropractic is finest, largest anomalous, traumatic, pathological, osteological collection in world. Thousands of specimens are at our command, all once living in a human body. Each specimen has been so thoroughly studied that they are as old friends. This collection has been in process of being gathered for 30 years. Its actual value possibly would be not less than \$150,000.

In this collection, you will find normal complete skeletons by the score; skeletons with original skull, atlas, axis, and cervical vertebrae; saying nothing about balance of skeletal frame-work. You will find skulls by the score, separated from their original cervical vertebrae. You will find spinal columns by hundreds; and single groups of cervical vertebrae; also single atlases and axes by hundreds. We mention this to impress the fact that your author knows his normal osteology, having spent thousands of hours getting acquainted with these specimens. And yet, notwithstanding this unparalleled opportunity to know osteology,

importance of this odontoid process has escaped our diligent observation of its connection in Chiropractic causative and corrective picture until early spring of 1930; idea of torqued subluxation and torquing an adjustment not being revealed to Chiropractic professional until fall of 1933.

Assuming that our reader KNOWS his osteology would make the setting down of these facts much easier; but, having instructed several thousand Chiropractors to this new idea, one stumbling block we find to a correct and clear understanding is based on fact that FEW DO know normal osteology as regards articulations between occiput and atlas; atlas and axis; axis and 3rd cervical — beyond that reducing in importance the farther you descend.

Occipital condyle should articulate on anterior portion of superior of atlas. In majority of sick people it will be found anywhere but in normal apposition, in articulation to where it belongs normally. This becomes, NOW, an important item of study.

Skull has a normal position in which it should be held as regards uprightness, laterality, anteriority and posteriority. In majority of sick people, it will be found anywhere else but in normal position. This becomes NOW another important item of study.

Atlas has a normal position in which it should "sit" when in perfect articulation with occiput. Yet it is rarely found in that position. It is either inferior on left side; superior on right side; anterior arch may be superior against skull or very much inferior from that skull. Posterior arch may be superior against skull or very much inferior from that skull. No matter what its position abnormally, it does seriously affect relative position of odontoid as it plays that spinal canal inside of bony ring of that atlas; and thus does create pressure upon spinal cord, or multiple of its nerve fibres as they pass out and through inferior from brain.

Axis has a normal position in which it should "sit" when in perfect articulation with atlas on its superior and with 3rd cervical on its inferior. It may be torqued in its subluxated position so that it is inferior on either left or right side; twisted posterior or anterior on either left or right side; its anterior centrum may be superior or its spinous process may be inferior, to such an extent that it does seriously affect relative position of odontoid as it plays that spinal canal inside of bony ring of atlas; and thus

does create pressure upon spinal cord, or multiple of its nerve fibres as they pass out and through inferior from brain.

When it finally began to dawn into our consciousness that this odontoid process could be torqued in its position into and around in that spinal canal and that it was THE specific cause of ALL disease of the human body, we could hardly believe our conclusions. Thousands of spinographs of general run of sick people were taken, studied to verify fact. They did! Thousands of analyses were made of these spinographs and cases adjusted accordingly, to see if results could be attained by correction of this exclusive conclusion of fact. They were! Many thousands of sick people were spinographed and those spinographs read with this exclusive TORQUED SUBLUXATION principle in mind; and same thousands were adjusted with ultimate objective of UNTORQUEING THAT TORQUE to see if practice of that principle was sound. It was! It was after three years of constant exclusive research that we finally announced THE TORQUED SUBLUXATION, and THE TORQUE ADJUSTMENT was proclaimed to our profession.

At first we were prone to think it was an occasional condition. We took spinographs of exaggerated positions, thinking we could study conditions, changes, and results better in such cases. In taking the unusual, we also studied the usual, to be forced to conclusion that ALL had THE SAME condition, difference being in degree; some more, some less; some with atlas as torqued subluxation; some with axis as torqued subluxation. At first we believed it would be difficult to decipher which and prove it to our profession. To our surprise, we found it extremely simple; easy to grasp; clearly understood by our profession.

In many cases, odontoid is found posterior into neural canal; sometimes posterior and to left; other times to right. Sometimes it remained in normal location but was shifted in position to right or left. Oftentimes it was as far posterior as to reach center third of space between anterior and posterior arches. Take the space between anterior interior surface of posterior ring, and posterior interior surface of anterior ring, and divide it into three equal spaces, and it is surprising to find how many times it is found directly in center third of that space.

Frequently upon a study of a lateral view of cervical region, if head and atlas are level with each other and axis is torqued

subluxation, we find that odontoid process is obliquely crossing neural canal to extent that it occludes neural canal between inferior surface of atlas and superior surface of axis. Not only is it out of situ, but is obliquely so, thus doing more damage by way of occlusion, pressure, and interference to transmission than if it were just posterior of its normal situ.

We are not unmindful of fact that if you were to hold normal atlas and axis vertebrae in your hands (being certain that the two vertebrae were of the same person and therefore possess normal articulations) that it would seem difficult to create, WITH THEM in your hands, that and those spinographic conditions which eye DOES SEE which exist in average normal living being. Specimens do not lie; neither do spinographs. That there seems a discrepancy is obvious. Discrepancy, if it be such, does not exist in reality. Bone specimens in your hands possess no flesh. Spinographs do, and this absence in one case and presence in other, absorbs difference in seeming fact.

Transverse ligament, which crosses from one pedicle to other posterior to odontoid process in situ, is no hindrance to torqued subluxations which spinographs reveal. This transverse ligament gives, stretches, and is subject to green-stick fractures in living structure the same as any other like structure anywhere else in human body. If there be a posterior torqued subluxation of axis, transverse ligament becomes a vital offending element in creation of occlusion, pressure, and interference. As body process intrudes into canal, transverse ligament also intrudes directly posterior to it, and thus any misplacement of the process also misplaces the ligament to an equal extent.

Torqued subluxation not only produces pressure direct of solid substance against the soft, i.e., odontoid process as well as transverse ligament; but we must also keep in mind that vertebra is on a three directional torsion away from normal position of superior vertebra about it, and thus creates a twist of meninges of cord which is no small item in creation of a constriction circularly and obliquely surrounding canal, thus creating interference with transmission of carrying capacity of fibres which form spinal cord.

RULES FOR TORQUEING ADJUSTMENTS

If head is low on left, atlas is low on left, axis is low on left, then axis spinous process will be right of median line.

Axis would be listed as a PRI and should be adjusted to ALS.

In this condition, right hand would be nail hand; right elbow would torque toward you, or inferior; left elbow would torque away from you, or superior.

This adjustment would RAISE axis on left,
atlas on left,
head on left, thereby untorque-
ing the torque's kink.

If head is low on right, atlas is low on right, axis is low on right, then axis spinous process will be left of median line.

Axis would be listed as a PLI and should be adjusted ARS.

In this condition, left hand would be nail hand; left elbow would torque toward you, or inferior; right elbow would torque away from you, or superior.

This adjustment would RAISE axis on right,
atlas on right,
head on right, thereby un-
torqueing the torque's kink.

Two possible variations or exceptions may rarely occur. (False listings).

If head is low on left, atlas is low on left, axis is low on left, and axis spinous process is LEFT of median line, adjustment would be given as in first instance above, as though it were a PRI.

If head is low on right, atlas is low on right, axis is low on right, and axis spinous process is RIGHT of median line, adjustment would be given as in second instance above, as though it were a PLI.

We have been working on twist, wrench, kink, or torque idea for two years; both in clinical research as well as analyzing thousands of X-ray plates.

As a result, there are FOURTEEN possible twists, wrenches, kinks, or torques in superior cervical region.

1. At. RAS. Head down on LEFT side of face. Stand on RIGHT side of case. Nail point as close to RIGHT transverse as possible.
RIGHT hand is nail hand.
Adjustment to LPI.
RIGHT hand, being nail hand, torques to INferior.
LEFT hand, being hammer hand, torques to superior.
2. At. RAI. Head down on LEFT side of face. Stand on RIGHT side of case.
Nail point as close to RIGHT transverse as possible.
RIGHT hand is nail hand.
Adjustment to LPS.
RIGHT hand, being nail hand, torques to superior.
LEFT hand, being hammer hand, torques to inferior.
3. At. LAS. Head down on RIGHT side of face. Stand on LEFT side of case.
Nail point as close to LEFT transverse as possible.
LEFT hand is nail hand.
Adjustment to RPI.
LEFT hand, being nail hand, torques to inferior.
RIGHT hand, being hammer hand, torques to superior.
4. At. LAI. Head down on RIGHT side of face. Stand on LEFT side of case.
Nail point as close to LEFT transverse as possible.
LEFT hand is nail hand.
Adjustment is RPS.
LEFT hand, being nail hand torques to superior.
RIGHT hand, being hammer hand, torques to inferior.
5. At. RPS. Head down on LEFT side of face. Stand on RIGHT side of case.
Nail point as close to RIGHT transverse as possible.
RIGHT hand is nail hand.
Adjustment is LAI.
RIGHT hand, being nail hand, torques to inferior.
LEFT hand, being hammer hand, torques to superior.

6. At. RPI. Head down on LEFT side of face. Stand on RIGHT side of case.
Nail point as close to RIGHT transverse as possible.
RIGHT hand is nail hand.
Adjustment is to LAS.
RIGHT hand, being nail hand, torques to superior.
LEFT hand, being hammer hand, torques to inferior.
 7. At. LPS. Head down on RIGHT side of face. Stand on LEFT side of case.
Nail point as close to LEFT transverse as possible.
LEFT hand is nail hand.
Adjustment is to RAI.
LEFT hand, being nail hand, torques to inferior.
RIGHT hand, being hammer hand, torques to superior.
 8. At. LPI. Head down on RIGHT side of face. Stand on LEFT side of case.
Nail point as close to LEFT transverse as possible.
LEFT hand is nail hand.
Adjustment is to RAS.
LEFT hand, being nail hand, torques to superior.
RIGHT hand, being hammer hand, torques to inferior.
-

In following reference, as applicable to axis subluxations, note that we refer to "True listing" and "False listing."

By "True" listing is meant:

If head is inferior on left, atlas is tipped inferior on left, axis is tipped inferior on left, (head is tipped posterior over left shoulder) spinous process of axis will be to RIGHT of median line. This is a TRUE listing of a PRI subluxation.

By "False" listing is meant:

If head is inferior on left, atlas is tipped inferior on left, axis is tipped inferior on left, (head is tipped posterior over left shoulder) spinous process is occasionally found LEFT of median line. This is a "False" listing of a PRI subluxation, notwithstanding we would adjust it as a PRI subluxation.

Axis. True listing PRI.

Head is low on left.

Atlas is inferior on left.

Axis is inferior on left.

Axis is right of median line.

Subluxation is PRI.

Head is down on LEFT side of face. Stand on right side of case.

Nail point as close to right side of spinous process of axis as possible.

Right hand is nail hand.

Left hand is hammer hand.

Adjustment is to ALS with the objective of:

raising left side of head

throwing head forward from posterior

raising left side of atlas

raising left side of axis.

Right hand, being nail hand, torques to inferior.

Left hand, being hammer hand, torques to superior.

Axis. True listing PLI.

Head is low on right.

Atlas is inferior on right.

Axis is inferior on right.

Axis is to left of median line.

Subluxation is PLI.

Head is down on RIGHT side of face. Stand on LEFT side of case.

Nail point as close to left side of spinous process of axis as possible.

Left hand is nail hand.

Right hand is hammer hand.

Adjustment is to ARS with objective of:

raising right side of head

throwing head forward from posterior

raising right side of atlas

raising right side of axis.

Left hand, being nail hand, torques to inferior.

Right hand, being hammer hand, torques to superior.

Axis. False listing PRI.

Head is low on left.

Atlas is inferior on left.

Axis is inferior on left.

Axis is LEFT of median line.

Subluxation APPEARS PLI but is listed as PRI.

Head is down on LEFT side of face. Stand on RIGHT side of case.

Nail point as close to RIGHT side of spinous process of axis as possible.

Right hand is nail hand.

Left hand is hammer hand.

Adjustment is to ALS with objective of:

raising left side of head

throwing head forward from posterior

raising left side of atlas

raising left side of axis.

Right hand being nail hand, torques to inferior.

Left hand, being hammer hand, torques to superior.

Axis. False listing, PLI.

Head is low on right.

Atlas is inferior on right.

Axis is inferior on right.

Axis is right of median line.

Subluxation APPEARS PRI but is listed as PLI.

Head is down on RIGHT side of face. Stand on LEFT side of case.

Nail point is close to LEFT side of spinous process of axis as possible.

Left hand is nail hand.

Right hand is hammer hand.

Adjustment is to ARS with the objective of:

raising right side of head

throwing head forward from posterior

raising right side of atlas

raising right side of axis.

Left hand being nail hand, torques to inferior.

Left hand, being hammer hand, torques to superior.

Inasmuch as they are not in twist, wrench, kink, or torque classification, they would be adjusted as ordinary.

A MIRACLE HAPPENED DURING 1933 PRE-LYCEUM CLINC REVIEW COURSE

Once we were satisfied to think we could *think* where subluxation was; and believed that wherever we thought it was, that was it.

Once we were satisfied to palpate up and down the ridges and bumps, hills and valleys, and believe that whatever we felt out of line, that was it.

Once we were satisfied to believe that every such vertebra was a "subluxation."

Once we were satisfied to believe that every push, shove, bump, and crack we gave was an adjustment.

Then we became dissatisfied.

We began to demand to *know* whether what we thought was so; whether ridges and bumps, hills and valleys, and everything out of line *was* a subluxation; whether every one such needed to be pushed, shoved, bumped, and cracked; and whether such *was* an adjustment.

The SPGH and NCM entered.

They proved that many things we palpated, which we thought were subluxations, were not. They proved that many places we thought were subluxations, were not. They proved that many places we thought were subluxations were not such in fact; they were not present when we thought they were; we were pushing many places that should have been let alone.

Naturally, this split our family into the groups that still thought they knew. We had our facts; they had their theories. No two groups *agreed*. *Disagreement* was the order of the day.

A miracle has now (1933) happened.

For the first time in 38 years of Chiropractic a group of 200 Chiropractors gathered, studied some new work, saw what they saw and agreed.

They agreed, not once but many times.

They agreed, not on one idea but many of them.

They agreed, not on one case but many of them.

They agreed, not on one subluxation but many of them.

They agreed, not on reading one spinograph, but on many of them.

They agreed, not on listing one subluxation, but on many of them.

They agreed, not on how to adjust one vertebra, but on many of them.

They agreed, not on many majors to adjust, but the correct one.

Actually and in reality this motley group of believers and disbelievers; those who came to scoff and those who came to learn — 200 from the four corners — were able to agree, day after day, case after case.

How did this miracle come to pass? Why has it not existed before? How did it exist now? What made this possible after 38 years?

Science!

Simplified science!

Simplified scientific facts!

Elimination of theory, doubt, and guess!

The final establishment of Chiropractic on a definite, positive, efficient, accurate, competent and honest scientific basis.

Chiropractic has now been builded where all Chiropractors can take the same case, find the same interference; take spinographs, and read subluxations the same; ascertain the correct adjustment exactly alike, and uniformly get each case well with the same adjustment.

1933 PSC-NCM-SPGH-HIO science has made this miracle possible in Chiropractic.

Years from now, at the rate of growth we are now making, *this work* will be the exclusive standard, professionally and legally. Now is *the* time to get in on the primary growth of the future.

CHAPTER 6

The Story Of
PUBLICATION OF STATISTICS
on
Chiropractic Clinical Controlled Research

When we started to build the B. J. Palmer Chiropractic Clinic, we had several objectives in view.

Medical doctors said there is no vertebral subluxation. We decided to prove there is.

Medical doctors said no man living could move a vertebral subluxation if there were such. We decided to prove it can be done and is being done constantly and consistently by Chiropractors.

Medical doctors said that, even if it could be moved, it could not improve any function in any organ of body. We decided to prove that such does improve function of various kinds in various organs of living body.

To this end, we built a Clinic of two complete divisions:

1st. A medical side, using regular medical methods of ascertaining symptoms, pathology, and diagnosis. To this end, our equipment is as complete as any medical clinic and superior to majority of such clinics. To this end, we have two medical men qualified to conduct such examinations and build their records accordingly.

2nd. A Chiropractic side, using any and all scientific equipment which would prove Chiropractic principle and practice, building complete case files and records by using automatic and mechanical recording equipment, eliminating all possible human variables.

Each case entering this clinic was put through both divisions, records being established on each. Case files were kept constantly complete.

Medical men are prone to say that "all cases who go to a Chiropractor are hypochondriacs and would have gotten well had they

never gone to any doctor." The average Chiropractor does not get acute cases; he gets them only when they are chronic. He gets only those cases that failed to get well at hands of medical men. We, in this Clinic, get many cases that have been referred to us by Chiropractors; so, as a rule, we get worst of the worst. All have had usual medical care before coming to us. Obviously, they were not "hypochondriacs" when medical men had them, and they did not "get well anyhow" so long as they had them.

An aim of our clinic, was to prove, by same methods used by medical men, that cases which came to us WERE SICK and did have conditions previously diagnosed as such by medical men, so when they got well under Chiropractic adjustments there was no way records could renege on facts that cases did get well of conditions proven by us to be same as medical men had found.

Only method used to restore health to the sick was Chiropractic principle and practice. No medication was used on any cases at any time in any way.

ONLY Chiropractic method used in these researches, on cases in The B. J. Palmer Chiropractic Clinic, was specific adjustment of atlas or axis. No other "adjustment" was given at any other place in spinal column. We said ONLY place there could be a vertebral subluxation, with its four major elements, was in occipito-atlantal-axial area. The way we proved that was an all-inclusive and all-exclusive location of vertebral subluxation; to do nothing at any other place in any other way. Since inception of The B. J. Palmer Chiropractic Clinic in July, 1935, no other method has been used. That it has proved itself, is in proof we offer in these analyses of cases in this Clinic. After sixteen years (1935-1951), we have complete case files, medical and Chiropractic, before and after adjustment of thousands of cases. We now are breaking them into percentage analyses to prove that CHIROPRACTIC DOES GET SICK PEOPLE WELL BY ADJUSTING VERTEBRAL SUBLUXATIONS OF ATLAS OR AXIS ONLY.

From time to time we shall issue bulletins of research breaking down analyses of these cases, such as the following:

B. J. PALMER CHIROPRACTIC CLINIC — CLINICAL
CONTROLLED RESEARCH PUBLICATIONS
PUBLISHED

- (1) Hematological Changes Under Controlled Specific Chiropractic Care —
(On 1054 Cases)
- (2) Urological Changes Under Controlled Specific Chiropractic Care —
(On 2006 Cases)
- (3) Basal Metabolic Changes Under Controlled Specific Chiropractic Care
(On 909 Cases)
- (4) Toxic Drug Effects —
(Toxic effects of over 600 drugs, also side effects of therapy methods
and surgical procedures. Over 10,000 quoted citations)
- (5) Neurocalometer, Neurocalograph, Neurotempometer Controlled Re-
search as Applied to Eight B. J. Palmer Chiropractic Clinic Cases.

NOW IN PROCESS

- (1) Electrocardiograph Changes Under Controlled Specific Chiropractic
Care (On 1500 Cases) (In print by August, 1951)
- (2) Audiometric Changes Under Controlled Specific Chiropractic Care
(On 600 Cases) (In print by August, 1951)
- (3) Differential White Blood Cell Changes Under Controlled Specific
Chiropractic Care (On 3000 Cases) (In print by December, 1951)
- (4) Blood Pressure Changes Under Controlled Specific Chiropractic Care
(On 4000 Cases) (In print by April, 1952)
- (5) Full Spine Changes Under Controlled Specific Chiropractic Care
(On 5000 Cases) (In print — estimated by August, 1953)
(All of these studies are started, and in varying stages of completion)

Many Other Projects Are Contemplated, Such as:

1. Blood Chemistry Changes
2. Diabetic Blood Sugar and Insulin Reduction Studies
3. Conturographometer Changes
4. Heartometer Study
5. X-ray, Upper Cervical Changes
6. Many individual conditions, such as multiple sclerosis, chronic polio,
epilepsy, etc.
7. Electroencephaloneuromentimpograph Controlled Research
8. Neurocalometer Pattern, X-ray, and Timpograph Correlation.

INTERNATIONAL CHIROPRACTORS ASSOCIATION —
RESEARCH PUBLICATIONS

PUBLISHED

- (1) "Field Research Data" — A study of 53 different conditions, comprising 8,873 cases.

(This is a cumulative study, revised each year. August, 1951, edition will contain data on about 15,000 cases.) This is a saleable item to other than membership.

(1950 edition 50c)

(1951 edition \$1.00 — ready in August, 1951)

- (2) "Research in Health and Industry" — This contains analysis of

1. Three State Workmen's Compensation Study on 2975 low back industrial injuries.

2. 191 Health and Accident Cases. Claims paid by insurance companies (Reported from Chiropractors' files).

Cost per copy, \$1.00. Revised edition to be published in August, 1951.

- (3) 1000 "Herniated or Slipped Disc" Cases Under Chiropractic Care.
25c per copy, \$16.00 per 100, 25 per cent discount on 500 or more.

NOT PUBLISHED

- (1) Acute Poliomyelitis Under Chiropractic Care

(Number of cases not known — should be in print by August, 1951)

- (2) Revised "Field Research Data"

15,000 cases (August, 1951)

- (3) Revised "Research in Health and Industry"

Six State Workmen's Compensation Study, 3000-case field Chiropractors' study and two insurance company analysis.

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